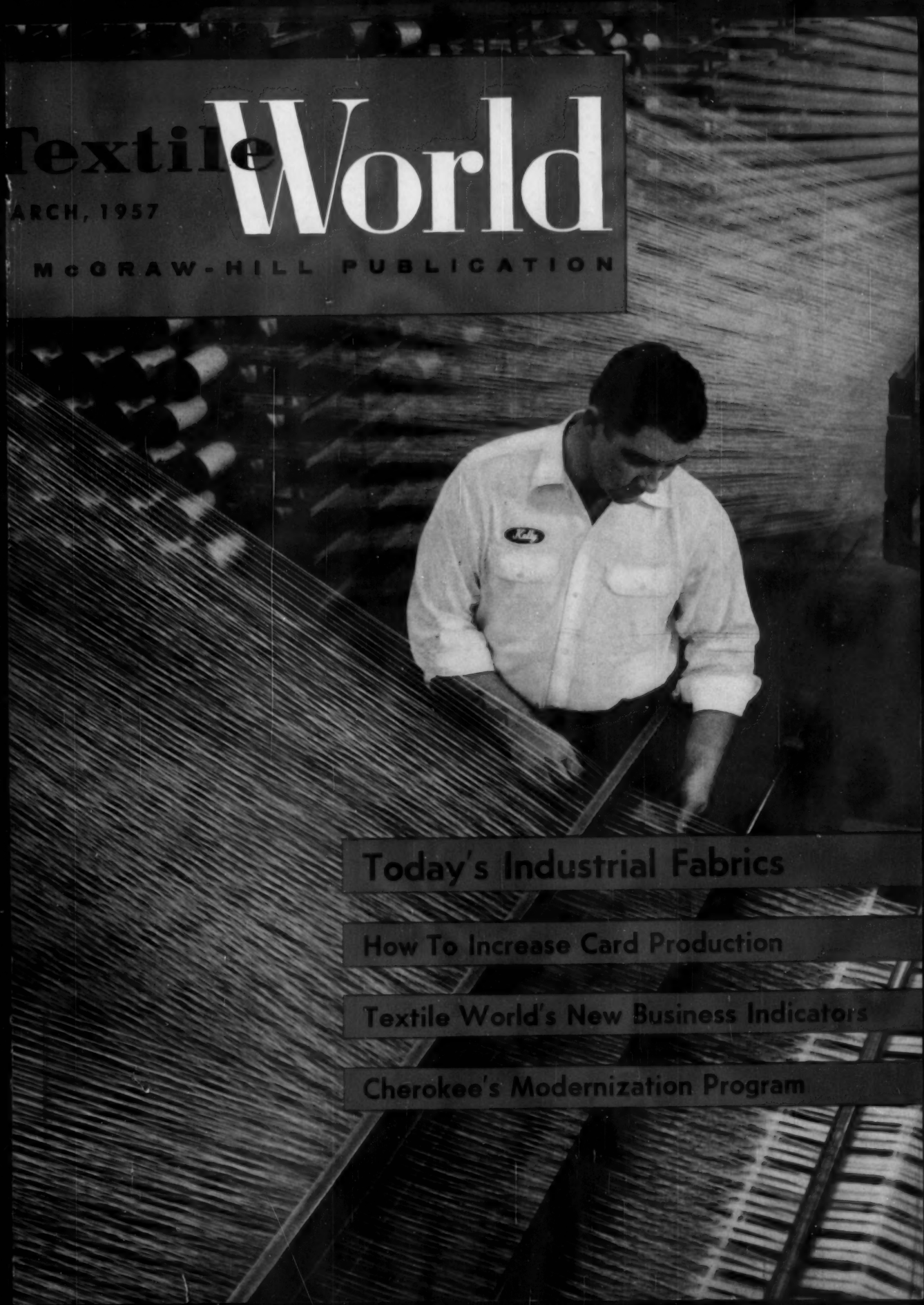
Textile World
ARCH, 1957
McGRAW-HILL PUBLICATION
Today's Industrial Fabrics
How To Increase Card Production
Textile World's New Business Indicators
Cherokee's Modernization Program

It's clear to see—

PERMA FIX-45 INCREASES COLOR FASTNESS IN HIGH TEMPERATURE WASHINGS

Perma Fix-45 reduces color bleeding to a minimum, it increases fastness to high temperature washings.

It represents a new high in achievement of fast colors on synthetics.

Perma Fix-45 also reduces crocking—

- **increases fastness to washing and perspiration**
- **effects little or no change in dyed yarns or fabrics**
- **used in combination with resins and finishes**

Dyers will like Perma Fix-45 for its EASY APPLICATION • QUALITY RESULTS • LOWER COSTS

• technical bulletin and service available without obligation

Refined PRODUCTS CORPORATION • Manufacturing Chemists • Lyndhurst • New Jersey

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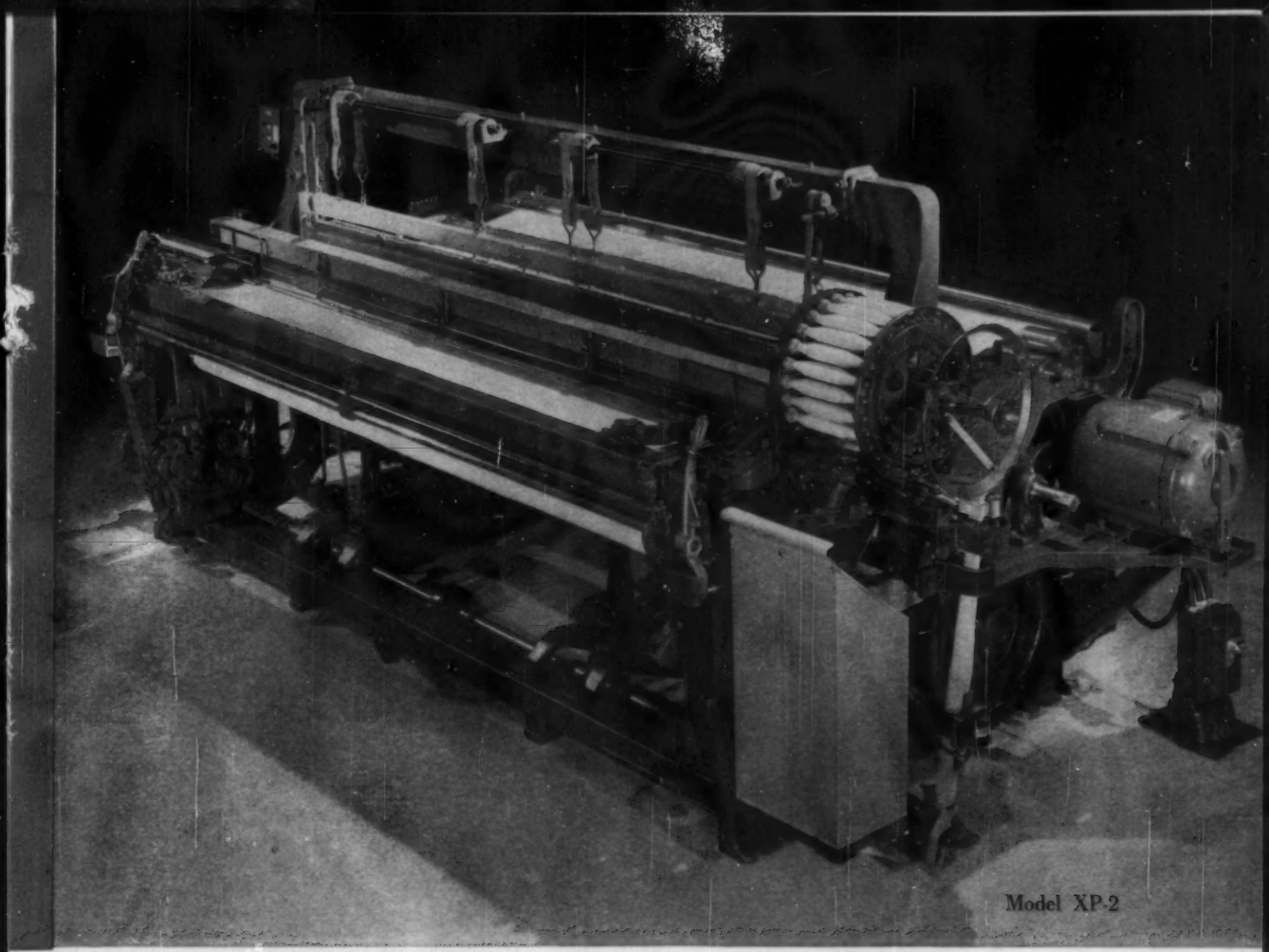

Model XP-2

Increase Wide Sheeting Production . . . with the new XP-2

New constructions found necessary for higher speeds in other models are now available *for the first time* in a wide sheeting loom.

The Draper XP-2 is equipped with a conventional type Pick Motion, simplified Power Transmitter, Bartlett Let-Off, Worm Take-Up, Easy Shipper and Positive Brake.

These adaptations mean increased production, greater loom versatility, less downtime and easier loom operation.

Engineered for high speed and efficient performance the Draper XP-2 *offers better profit margins.*

DRAPER CORPORATION

Hopedale, Mass.

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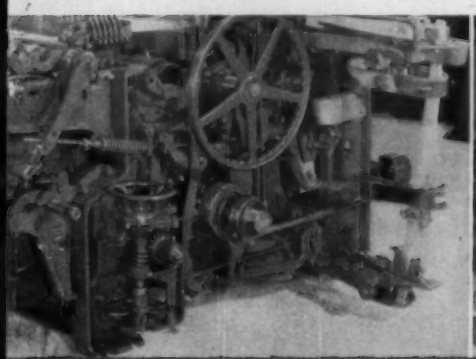
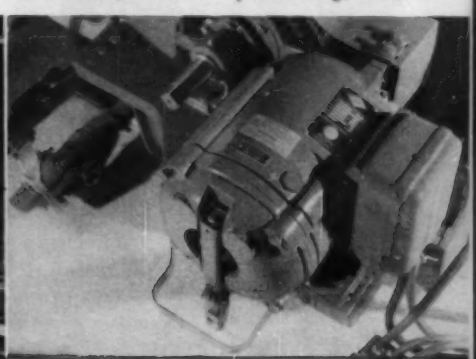


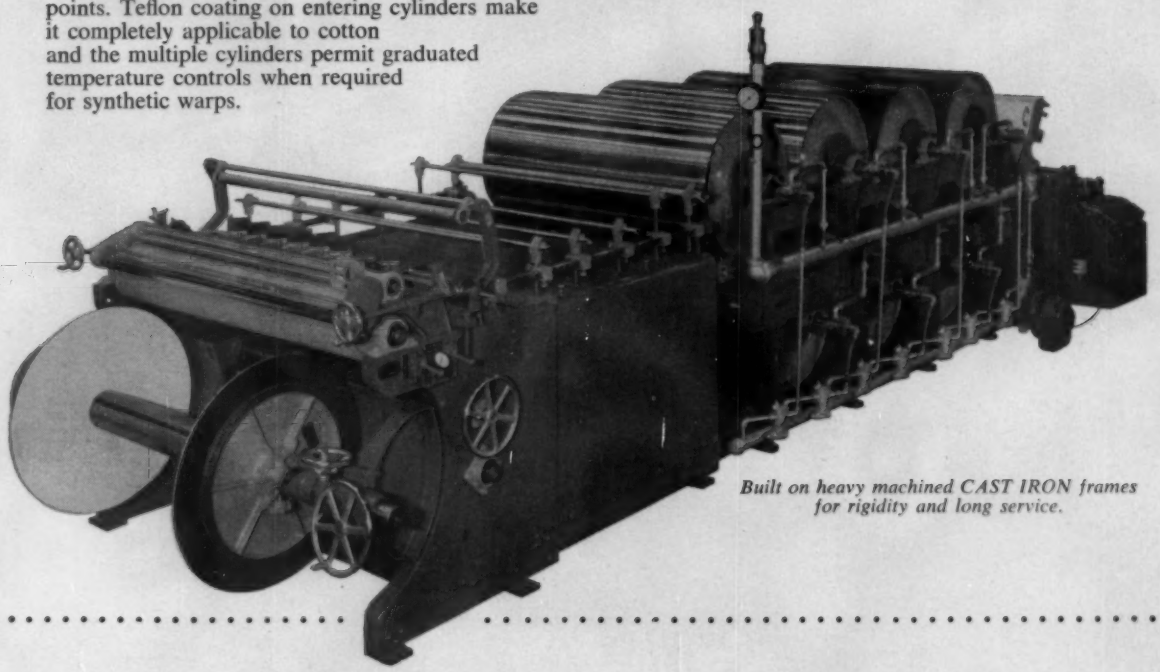
Automatic Bartlett Let-Off

Available with 16 Harness Dobby



Draper-Diehl Drive

MULTI-CYLINDER SLASHER—An extremely versatile high-production slasher doing an outstanding job wherever it is installed . . . on cotton, spun and filament synthetics. Superior control of tension throughout the slasher, year after year dependable high production, and steam economy are the MULTI-CYLINDER'S strong points. Teflon coating on entering cylinders make it completely applicable to cotton and the multiple cylinders permit graduated temperature controls when required for synthetic warps.



Built on heavy machined CAST IRON frames for rigidity and long service.

Your choice of Air-Dri® or Multi-Cylinder in

WEST POINT FOUNDRY SLASHERS

Yes, you have a choice with West Point Foundry, because West Point makes *both* MULTI-CYLINDER and AIR-DRI Slashers. And *both* are high producers . . . quality producers. Whether it's a complete slasher installation or modernization of present equipment . . . call West Point Foundry . . . specialists in slashers. They offer you a choice!

AIR DRI® SLASHER—A modern hot air slasher second to none—designed, made *and serviced by* an experienced slasher manufacturer located conveniently in the Textile South. AIR-DRI's insulated enclosure provides a clean and comfortable slasher room . . . for cotton, worsted, and spun synthetic warps. Made with two fans or three fans . . . for either 54½" or 72" warps.

AIR-DRI is a registered trademark of West Point Foundry and Machine Co.

WEST POINT
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WEST POINT, GEORGIA

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PUBLISHED MONTHLY

A McGRAW-HILL PUBLICATION

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Volume 107 Number 3

KEYED ACCORDING TO READER INTEREST

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CALENDAR

March

AATCC, New York Sect., Hotel Delmonico, New York, N. Y., March 1.

AATT, Della Robbia Room, Vanderbilt Hotel, New York, N. Y., March 6.

National Council for Textile Education, spring meeting, Wilmington, Del., March 11 to 13.

Textile Research Institute, annual meeting, Hotel Commodore, New York, N. Y., March 14 & 15.

Southern Textile Methods and Standards Association, spring meeting, Clemson House, Clemson, S. C., March 14 & 15.

Textile Quality Control Association, spring meeting, Clemson House, Clemson, S. C., March 28 & 29.

April

American Cotton Manufacturers Institute, annual convention, Palm Beach Biltmore Hotel, Palm Beach, Fla., April 4 to 6.

National Packaging Conference and Exposition, sponsored by American Management Association, International Amphitheatre, Chicago, Ill., April 8 to 11.

Alabama Cotton Manufacturers Association, 56th Anniversary Meeting, Buena Vista Hotel, Biloxi, Miss., April 10 to 12.

National Knitted Outerwear Association, annual meeting, Waldorf-Astoria, New York, N. Y., April 23 & 24.

American Cotton Manufacturers Institute, Inc., Cotton Fiber Testing Laboratory, open house, Clemson House, Clemson, S. C., April 24 & 25.

Textile Operating Executives of Georgia, spring meeting, Hightower Textile Building, Georgia Institute of Technology, Atlanta, Ga., April 27.

National Association of Hosiery Manufacturers, annual meeting and hosiery industry conference, Claridge Hotel, Atlantic City, N. J., April 29.

The Underwear Institute, annual meeting, Hotel Traymore, Atlantic City, N. J., April 29.

Knitting Arts Exhibition, Convention Hall, Atlantic City, N. J., April 29 to May 3.

Materials Handling Exposition, Convention Hall, Philadelphia, Pa., April 29 to May 3.

May

The Fiber Society, spring meeting, Clemson House, Clemson, S. C., May 1 & 2.

Cotton Manufacturers Association of Georgia, annual convention, Emerald Beach Hotel, Nassau, Bahama Islands, May 1 to 4.

Alabama Textile Operating Executives, spring meeting, Thach Auditorium, Auburn, Ala., May 4.

North Carolina Industrial Safety Conference, Robert E. Lee Hotel, Winston-Salem, N. C., May 9 to 11.

American Society for Quality Control, annual convention, Masonic Temple, Detroit, Mich., May 22 to 24.

South Carolina Textile Manufacturers Association, annual meeting, The Cloister, Sea Island, Ga., May 30 to June 1.

Tufted Textile Manufacturers Association, annual convention, Fontainebleau, Miami Beach, Fla., May 30 to June 1.

June

Southern Textile Association, annual convention, Ocean Forest Hotel, Myrtle Beach, S. C., June 20 to 22.

September

Combed Yarn Spinners Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 26 & 27.

Carded Yarn Association, annual meeting, The Cloister, Sea Island, Ga., Sept. 27 & 28.

Textile Operating Executives of Georgia, fall meeting, Hightower Textile Building, Georgia Institute of Technology, Atlanta, Ga., September 28.

October

Chemical Finishing Conference, National Cotton Council of America, Statler Hotel, Washington, D. C., Oct. 2 & 3.

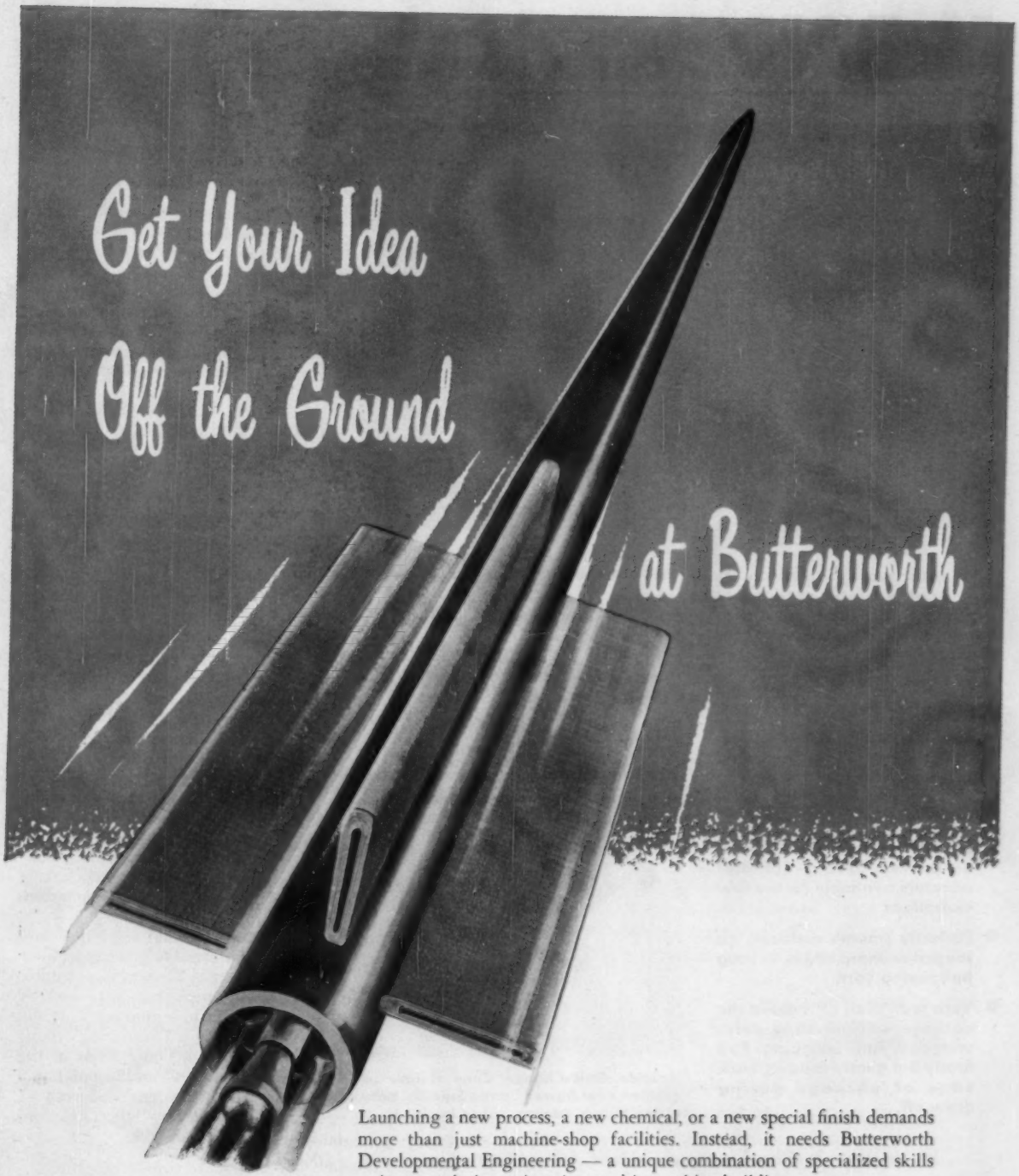
Alabama Textile Operating Executives, fall meeting, Thach Auditorium, Auburn, Ala., October 12.

National Industrial Packaging & Handling Exposition, Convention Hall, Atlantic City, N. J., October 28 to 31.

November

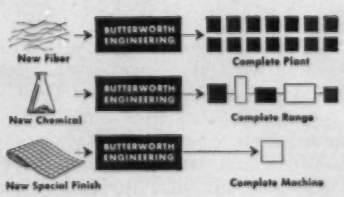
AATCC, national convention, Hotel Statler, Boston, Mass., Nov. 14 to 16.

TEXTILE WORLD. Published monthly, with an additional issue in July, by McGraw-Hill Publishing Co., Inc., Executive, Advertising, and Subscription Offices: 330 W. 42nd Street, New York 36, N. Y. Editorial Office: 201 E. Coffee Street, Greenville, S. C. Publication Office, 99-129 North B'way, Albany 1, N. Y. Second-class mail privileges authorized at Albany, N. Y. **For subscriptions,** write to: TEXTILE WORLD Subscription Service, 330 West 42nd Street, New York 36, N. Y. **State company and position. Subscriptions are solicited only from executives, engineers and technicians in textile manufacturing or finishing plants.** Single copies 50¢. United States and Possessions and Canada, $2 for 1 yr., $3 for 2 yrs.; and $4 for 3 yrs. Other Western Hemisphere and Philippines, $10 for 1 yr.; $16 for 2 yrs.; and $20 for 3 yrs. Other Countries, $15 for 1 yr.; $25 for 2 yrs.; and $30 for 3 yrs. Printed in USA. Annual index in Jan. issue.



Launching a new process, a new chemical, or a new special finish demands more than just machine-shop facilities. Instead, it needs Butterworth Developmental Engineering — a unique combination of specialized skills . . in research, in engineering, and in machine-building.

Specialized machines designed and built by Butterworth are now being used at almost every step in the manufacture of textiles — from the spinning of fibers to dyeing, bleaching and finishing. And among Butterworth's standard products are 84 diversified machines for textile finishing. So if your idea is still on the ground, let Butterworth get it airborne for you . . in complete secrecy . . from blueprint to production line.



Developmental Engineering • Research • Machine Building

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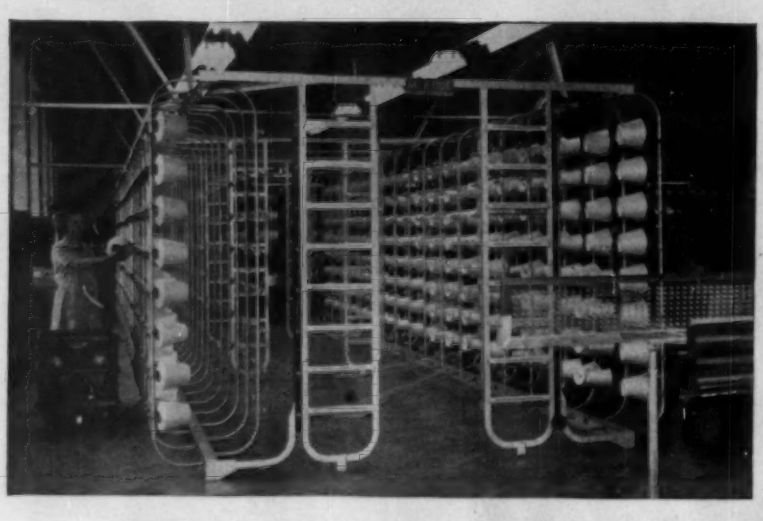
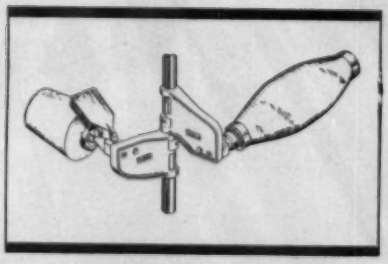
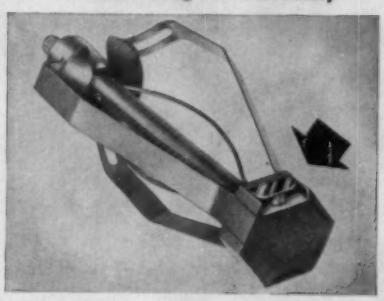


Can your warp room handle the great variety of modern packages? Consider these advantages of a McBride Creel Swing Arm Assembly.

- Rugged construction for rigid support of heaviest packages.
- Readily swings out for package change, snaps back into locked position.
- Accommodation of most packages without special adapters by Quik-Change Cone Holder or Bowed Spring Spindle; adapters available for the few exceptions.
- Perfectly smooth surfaces; no ragged or sharp edges to snag ballooning yarn.
- Yarn won't fall off behind the package; self-adjusting, polyurethane Anti-Snagging Pad firmly but gently follows back edge of package during draw off.



McBride Swing Arm Assembly



McBride Quik-Change Cone Holder in position over Bowed Spring Spindle. Note spring thumb release; snaps back on.

We specialize in difficult warping problems. Ask us about yours.

CREELS *for every purpose*, CONE HOLDERS, STOP MOTIONS, TENSION CONTROLS, WARP BEAMS, FLANGES, CARPET INSPECTION TABLES, METAL AND WOOD ROLLS. COMPLETE ENGINEERING SERVICE IS PART OF EVERY McBRIDE INSTALLATION

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IN CANADA:

Letters from Readers

We welcome your comments. Whether you agree or disagree, with us or anybody else, we will be glad to have you air your views.

Unless you ask us not to, we will use your name and company connection when your letter is printed. If you prefer to have your opinions appear unsigned, we will respect your confidence by using only a set of initials.

Write to Editor, Round Table, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

SOUND PUBLIC RELATIONS IS GOOD BUSINESS

Dear Editor:

The importance of sound public relations in the over-all planning of a mill's operations cannot be overemphasized. The most powerful influence on a company's community standing is what its own employees think and say about it. Public relations is simply doing the right thing and telling the employees and the community what you are doing.

Being a good business citizen is not enough. We must let the public know what we are doing, but bragging has no place in public relations. In practice, everyone from the president of the company to the learner is a public-relations man.

The company that does not have friendly relations with the people in its community is likely to have trouble keeping its employees loyal and its labor turn-over to a minimum. It will have difficulty in recruiting young people. These are only three of the penalties for a poor local reputation.

CHAUNCEY W. LEVER
Director, Public Relations
Abney Mills-Erwin Mills
Anderson, S. C.

WHAT CORRUGATED BOXES ARE AND ARE NOT

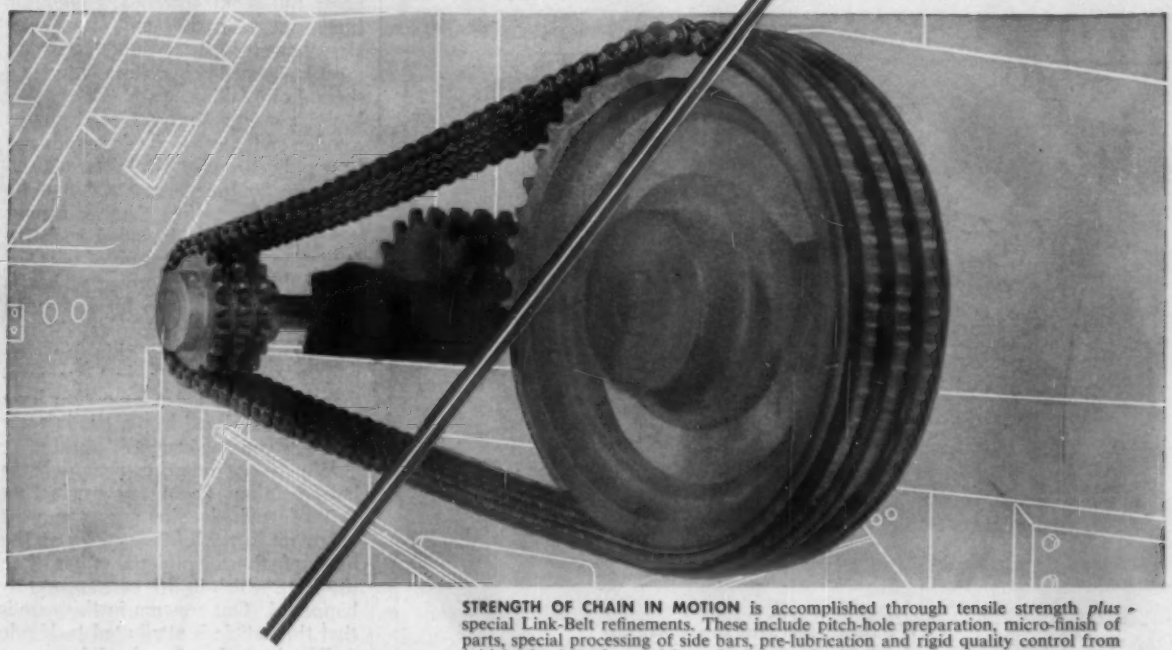
Dear Editor:

In your December issue under the heading Mill Maintenance, you published an article on "How To Use Corrugated Boxes" and attributed the information to this company.

We would be most interested to know from just what literature of ours

Not just static strength, but . . .

RESISTANCE TO TENSILE STRESS is achieved by use of properly heat-treated, accurately-machined side bars made of premium steel and fitted with properly-hardened pins, bushings and rollers. But to resist *operational* stresses, additional controls over dimensional accuracy, uniformity and roller resiliency are essential.



STRENGTH OF CHAIN IN MOTION is accomplished through tensile strength *plus* special Link-Belt refinements. These include pitch-hole preparation, micro-finish of parts, special processing of side bars, pre-lubrication and rigid quality control from initial selection of materials to final protective boxing.

dynamic strength

assures longer work-life for LINK-BELT Roller Chain

In addition to known tensile loads, roller chain in motion is frequently subject to other operating stresses. Engagement with sprockets . . . shock of starting loads . . . centrifugal loads—there are many similar stresses.

Link-Belt's solution: greater dynamic strength, achieved through design, manufacturing and processing "extras" . . . plus a combination of other important refinements. And you see the results in smoother, more efficient performance that lasts measurably beyond the life of ordinary roller chain—cuts your drive and conveying costs.

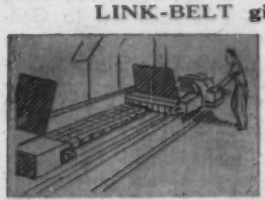
Near you is a Link-Belt office or authorized stock-carrying distributor where you can get full information on the complete Link-Belt range of single and multiple widths, ¼ to 3-inch standard pitch, and 1 to 3-inch double pitch. Ask for your copy of 148-page Data Book 2457.

LINK-BELT

ROLLER CHAIN & SPROCKETS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 15); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World. 14,121

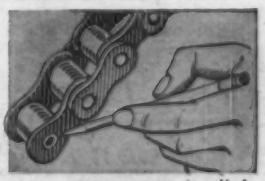
LINK-BELT gives you dynamic strength that comes from these important EXTRAS



PRE-STRESSING of multiple width chain provides uniform load distribution.

SHOT-PEENED ROLLERS have greater fatigue life, added ability to withstand impact.

CLOSER HEAT-TREAT CONTROL —coupled with rigid testing insures uniformity.



LOCK-TYPE BUSHINGS (applied on a range of sizes) end a cause of stiff chain.

MODERN DYEHOUSE EQUIPMENT

THE DEPENDABLE KWG SKEIN DYEING MACHINE

KWG Double Reel Skein Dyeing Machine —all stainless steel unit built in capacities to 1000 pounds.

FOR QUALITY DYEING
WITHIN INCREASED BUT MORE NORMAL TEMPERATURE and PRESSURE LIMITS

Perfection in dyeing—for natural and the new synthetic fibers—is yours with KWG Skein Dyeing machines. Rugged construction . . . improved **'Ferris-Wheel' performance . . . give you the penetration and evenness** of color—the permanence of tone—for that extra measure of sales appeal—without concern for costly high-temperature, high-pressure methods. Dual-operations possible including scouring, dyeing and shrink-proofing, or scouring, bottom bleaching and dyeing of pastel shades.

You can point the way to extra sales . . . extra profits . . . today by writing Klauder Weldon Giles. A KWG representative will be glad to survey your needs. If necessary, he'll design special equipment to your specifications. There's no obligation.

Klauder Weldon Giles MACHINE COMPANY
ADAMS AVENUE & LEIPER STREET • PHILADELPHIA 24, PA.

this information was taken, as it bears little resemblance to anything we have ever published. Many of the assertions in it are extremely inaccurate, and the entire tone of the article is misleading.

In this article, corrugated boxes (we never call them "cardboard" because that's not what they are) are generally characterized as containers that must be treated very delicately to keep them from falling apart. Corrugated boxes, you say, "are not as strong as wooden crates, are easily damaged, and have a short service life." These assertions are far from accurate, but more important is the fact that we cannot recall ever having included such information in any literature of ours.

For the record, a corrugated box is not a cheap substitute for a wooden box in any instance. Corrugated boxes are strong, lightweight shipping containers constituting a vast improvement over the wooden boxes they have long since replaced in practically every industry you can name.

We do not question your right to have opinions about our product or that of anybody else nor even your judgment in publishing articles on the basis of those opinions rather than the facts, which in this case apparently happened. Our concern in this case is that this article is attributed to Hinde & Dauch; and not only did we not supply the information, but we take serious issue with it.

W. F. WESTERHOLD
Director of Public Relations
Hinde & Dauch
Sandusky, Ohio

[*We stand corrected. Only parts of the article came from Hinde & Dauch publications, and we failed to indicate these parts.*—EDITOR]

ADD BURLAP IMPORTS TO LIST

Dear Editor:

In your editorial "Imports We Are Not Watching" [TEXTILE WORLD, Nov., '56, p. 87], you mentioned women's blouses and fine fabrics from Italy and men's socks from England. The huge imports of bagging burlap being used in high-priced goods, especially tufted carpets, should also be considered.

A year or so ago a bill was being considered for presentation to Congress by a Georgia Congresswoman suggesting the tariff be raised according to the end use of these bagging materials. I have heard that the bill was approved generally but that the State Department killed it.

The bad part is that because of these inferior backing materials, the tufters must load the back with latex

← For more data, write this page number on Reader-Service card.

MORE THAN 2½ MILLION SPINDLES NOW EQUIPPED WITH ROBERTS HIGH DRAFT

ROBERTS SPINNING NEWS

PUBLISHED BY ROBERTS COMPANY SANFORD, NORTH CAROLINA

VOL. 12 SANFORD, NORTH CAROLINA NO. 2

MOST BALL BEARINGS USED IN ROBERTS SPINNING FRAMES

The use of ball bearings at many key points of a spinning frame not heretofore found possible has been accomplished in the Roberts M-1 frames.

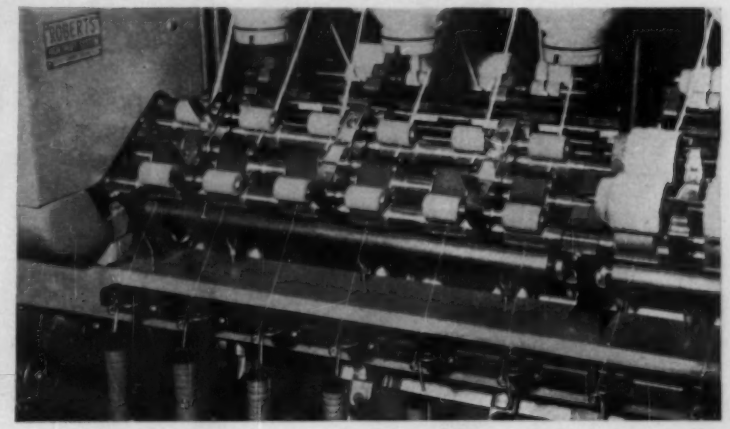
This liberal use of ball bearings results in a spinning frame with smoother performance, greater dependability and freedom from lubrication. The need to replace wearing parts and future maintenance expense is eliminated.

The key points in Roberts Spinning Frames now ball bearing equipped are:

lifting rod rolls
wave shafts
cross shafts
builder motion pivots
crown gear swing arms
complete lay trains
intermediate gears
front roll gears
upright shafts
jack shafts
cylinder bearings
and, of course, in
spindles
tape tension pulleys
top roll suspension system

The long felt desire by practical mill men to apply sealed ball bearings to spinning has been successfully accomplished in the Roberts M-1 Spinning Frames.

ROBERTS TOP ROLL SUSPENSION USES BALL BEARINGS ALL 3 LINES

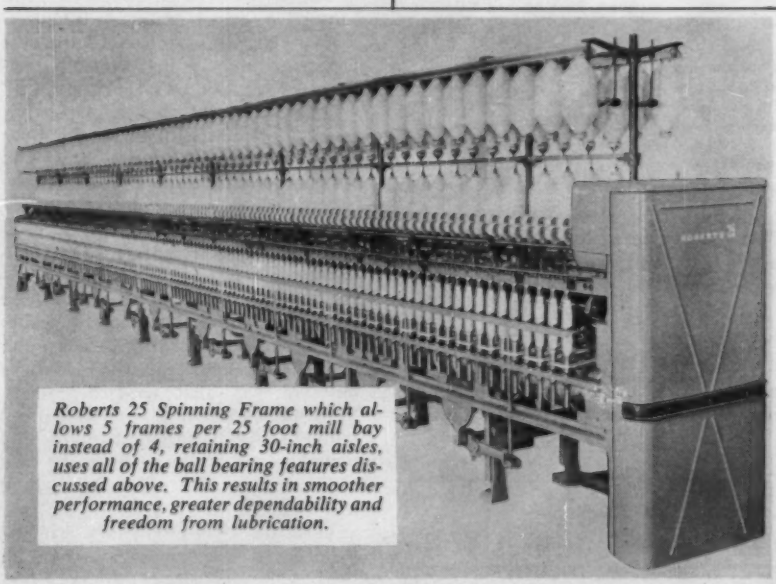


A top roll suspension system which uses double-row ball bearings in front, middle and back lines and incorporates many other important design advantages has been announced by Roberts Company

BALL BEARING SPINDLES FIND WIDE ACCEPTANCE

Since early 1956 when Roberts Ball Bearing Spindles were first introduced, several hundred thousand have been installed in spinning frames.

Mill men report their performance exceptionally dependable, even at the highest operating speeds.



Roberts 25 Spinning Frame which allows 5 frames per 25 foot mill bay instead of 4, retaining 30-inch aisles, uses all of the ball bearing features discussed above. This results in smoother performance, greater dependability and freedom from lubrication.

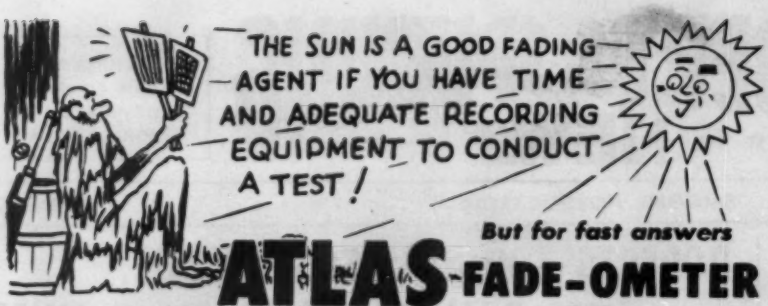
Adaptable to several drafting systems as well as its own, the Roberts Top Roll Suspension embodies all the following features, many not found in other arrangements:

1. Cots are buffed on standard equipment, without attachments.
2. Cots revolve together making lap removal simpler.
3. Full length revolving clearers are used.
4. Front and back rolls are interchangeable making sequence buffing possible.
5. All three lines of rolls have double-row ball bearings.
6. Has controlled self-alignment.
7. Cots have ½" hole diameter.
8. 2-piece labyrinth seal is protected from lint entrance and roll picker damage.
9. Double row bearing raceways are ground directly into ½" shafts.
10. Bearings grease-packed for life.
11. Conventional dead-weighting or new spring weighting optional.

An alternative arrangement also available employs a ball bearing top roll and special suspension on the front line only with Roberts Cap Bars and solid top rolls on middle and back top rolls.

Roberts also continues to offer its No-Oil Cap Bar and Saddle system for all three lines, now installed in more than 2½ million spindles.

For more data, write this page number on Reader-Service card. →



But for fast answers

ATLAS-FADE-OMETER

Fade-Ometer Used all over the world as the standard testing machine to determine the action of sunlight on materials. (Illustrated: Three Fade-Ometers in testing laboratory at Sears, Roebuck and Co.)

Launder-Ometer Standard testing machine of the A.A.T.C.C. for color-fastness and bleeding, shrinking, resistance to washing, testing dyes, soaps and detergents.

Test programs in these machines furnish reliable and the only accurate quick assessment of the degree of color fastness to sun light and resistance to washing and color bleeding.

Producers of soft goods can guarantee a specific colorfastness rating that adds considerably to the acceptance and saleability of a product.

Test programs can be duplicated at any time to give exact comparative data for product development formulas or in a production quality control program.

Write for detailed information and personal service on your particular problem

Sales representatives in principal cities throughout the world

ATLAS ELECTRIC DEVICES COMPANY • 4114 N. Ravenswood Ave. • Chicago 13, Ill., U.S.A.

WEATHER-OMETERS • FADE-OMETERS • LAUNDER-OMETERS

compounds to obtain fabric stability. Often the compounds are disproportionately high dollar-wise. Fifty-odd million square yards of anything is a lot of business to lose to imports.

CHARLES S. CURTISS
Gilman Paper Co.
New York, N. Y.

[What has happened is that mills in foreign countries, because of the peculiar wording of the tariff laws, can bring in jute carpet backing under the same classification as set up for burlap. The foreign manufacturers have a big advantage because they have to pay a duty of only ½¢ per lb. on woven jute backing. American manufacturers importing jute yarn must pay a duty of 4½ to 5¢ per lb.

Therefore, a square yard of jute backing made in the United States carries a tariff charge of approximately 5¢ per lb.; but a square yard of backing made in Belgium, India, or Japan carries a tariff charge of only ½¢ per lb. Since the product sells for about 35¢ per sq. yd., this difference in duty is a substantial part of the total price and gives to the foreign manufacturer a significant advantage—EDITOR.]

MOST AUTO TOPS ARE COTTON

Dear Editor:

The attached clipping was brought to my attention by Nashua Textile Co., Inc., Nashua, N. H.

"Cotton tops for convertible autos do not comprise 95% of the market as recently reported by the National Cotton Council, says Courtaulds (Alabama) Inc. Solution-dyed rayon tops will be used in 1957 models by Ford Motor Co., which claims in TV commercials that the fabric is 10 times as fade-resistant as conventional tops.—TEXTILE WORLD, Nov., '56, p. 212."

I have read the report by the National Cotton Council and feel that the following would be of value and enlightenment on the apparent confusion.

It probably will be true that in 1957 95% of the total yardage of convertible-top fabric going into new-car production and replacement trade will be made of cotton. However, it should be pointed out that the poundage per yard of cotton currently used is greatly reduced over that used heretofore. With the adoption of vinyl-coated top fabric by all the car manufacturers, the poundage of cotton used is far less than that in the old fabric-surface material.

Until the 1956 production year, the majority of the sport fabric used in

CONTINUED ON PAGE 224

how would YOU move a mountain of cotton?*

THIS MODERN WAY

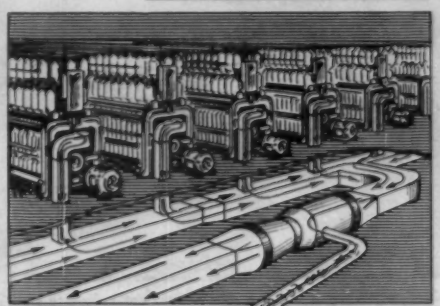
OR THIS OLD FASHIONED WAY

Copyright 1957 Pneumafil Corporation

PNEUMAFIL C.M.R.

(CENTRAL MATERIAL RECOVERY)

does it AUTOMATICALLY!



FOR SPINNERS ONLY! Pneumafil CMR (Central Material Recovery) means:

AUTOMATION—Fly and ends down fibers are continually and automatically delivered to the picker room (or any desired location) for reintroduction into process.

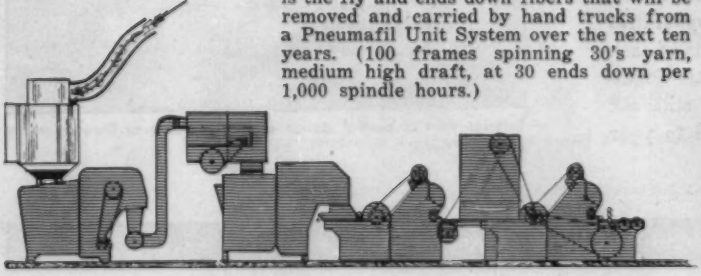
CMR means no time consuming frame to frame cleaning out of individual collector units and the moving of this material by old-fashioned hand truck methods.

PEAK EFFICIENCY—CMR operates at peak efficiency at all times! A constant air quantity and pressure is maintained at each spindle to assure: (1) maximum frame cleaning; (2) positive pick-up of ends; (3) minimum operating HP; (4) least deviation of temperature and humidity.

Collector units build up air resistance due to material collecting on screens. Because of this you have: (1) changes in air volume at spindle orifices; (2) changes in pressure at spindle orifices; (3) increased operating HP.

CMR is as essential in today's mill as the elevator was twenty years ago. Mills are now converting to CMR. If you have any other system in your mill, you should consider Pneumafil CMR, the best buy in mill modernization.

* This is what 800,000 lbs. of fluffy cotton looks like when compared to a 6 ft. man. It is the fly and ends down fibers that will be removed and carried by hand trucks from a Pneumafil Unit System over the next ten years. (100 frames spinning 30's yarn, medium high draft, at 30 ends down per 1,000 spindle hours.)



PNEUMAFIL CORPORATION
CHARLOTTE 8, NORTH CAROLINA
Atlanta, Ga., Needham Heights, Mass.

PNEUMAFIL

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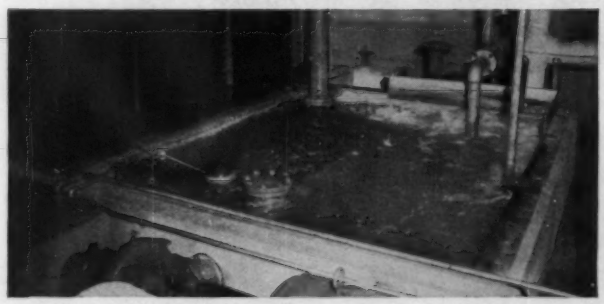
Why Owens-Corning Fiberglas chose

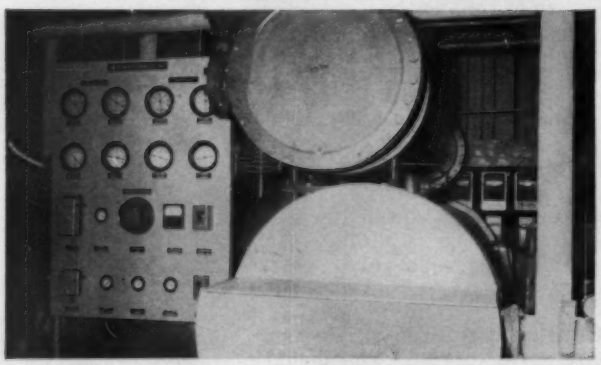
AMCO CENTRAL STATION AIR CONDITIONING

at its Huntingdon, Pa. Plant

Air distribution ducts and zone control atomizers in twisting room at Owens-Corning Fiberglas, Huntingdon, Pa. Widely spaced grille bars and snap-on latches allow quick, easy cleaning and maintenance.



Chilled water reservoir receives excess water from air washers, then recirculates water through chillers as needed.



Refrigeration equipment (chiller at bottom, condenser at top) with indicator and control panel designed and installed by AMCO.

If you want the facts about textile mill air conditioning — central station, unit dry-duct or ductless evaporative cooling — with the advantages and limitations of each system detailed, write for Amco's booklet "Air Conditioning for the Textile Industry". Or better still, ask Amco to recommend the system best suited to your needs. No obligation.

CLOSE-CONTROL HUMIDIFICATION

Owens-Corning, to assure greater operating efficiency throughout its mill, installed an Amco dual (split) system. This system calls for a central station unit augmented by room atomizers which permit the different manufacturing areas to be controlled *independently*, at any point, between 40% and 65% relative humidity.

CLEAN, CONDITIONED AIR

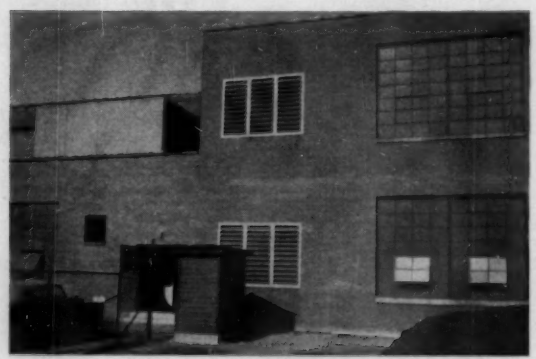
Fresh and recirculated air is thoroughly cleaned and conditioned with the right amount of moisture before distribution by the duct system. Room atomizers raise the moisture content to the level desired for each room, thus assuring ideal conditions for the particular manufacturing process.

CONSTANT YEAR-ROUND TEMPERATURE

Air passed through chilled water spray helps to maintain a year-round 78° F temperature. A total of 550 tons refrigeration capacity keeps work areas independent of outside weather.

ECONOMICAL OPERATION

A washer bypass takes care of below-maximum heat loads, saving on steam costs. This Amco system also uses steam coils to heat air for supplementary warmth when the weather is extremely cold or when machinery loads are very light.



Exterior view of central station apparatus house at Owens-Corning Fiberglas Corp.

AMERICAN MOISTENING COMPANY, Cleveland, N. C. *Branches:* Atlanta • Boston • Camden • Providence • Toronto

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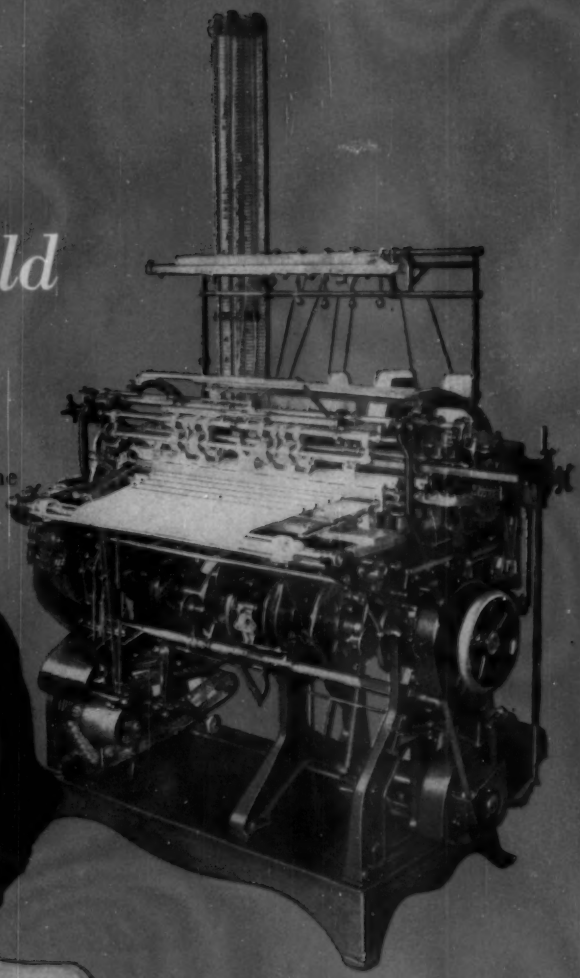
A FIRST in the FULL FASHION Field ... TFS

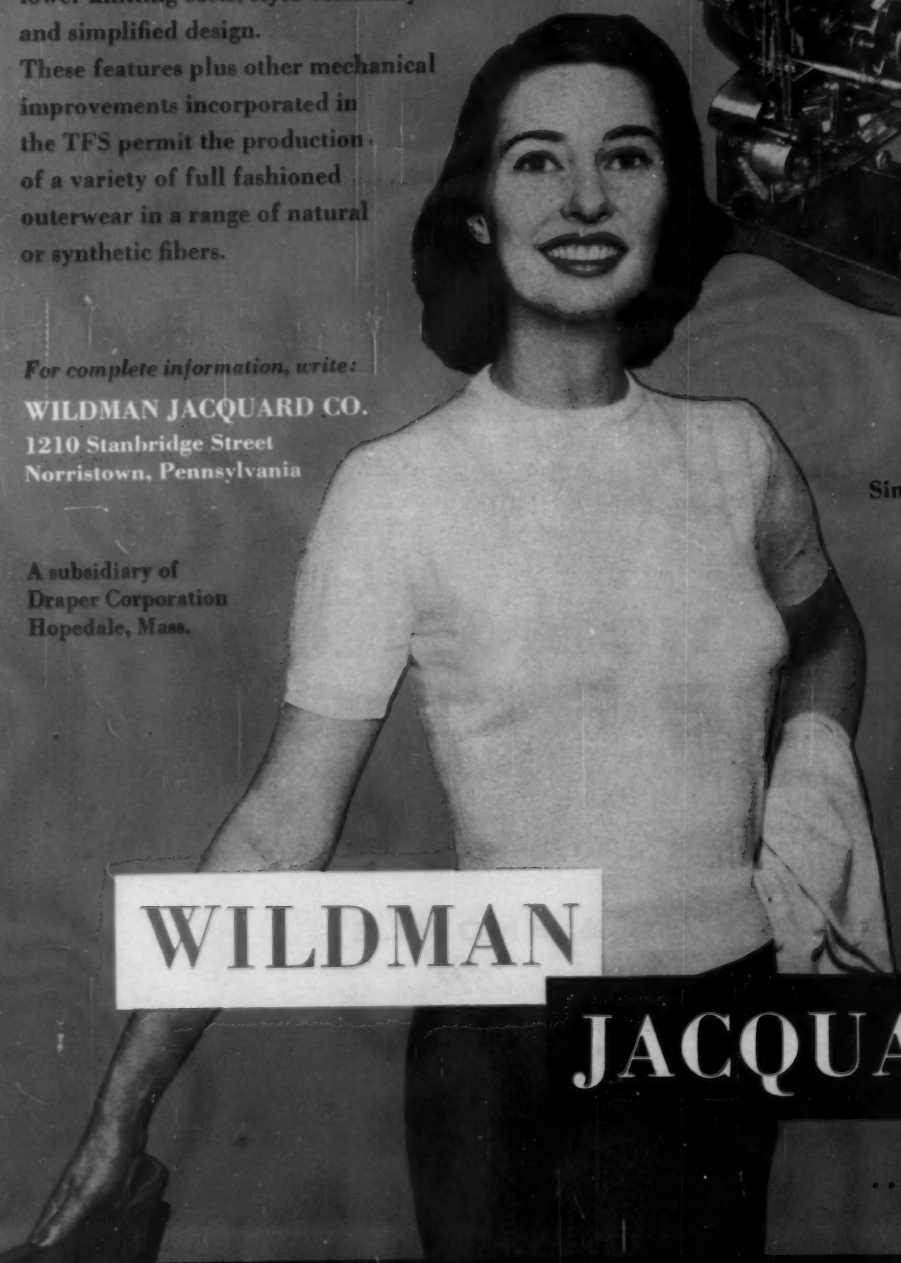
The Wildman Jacquard, TFS is a versatile knitting machine which offers increased production, quality fabrics, lower knitting costs, style versatility and simplified design.
These features plus other mechanical improvements incorporated in the TFS permit the production of a variety of full fashioned outerwear in a range of natural or synthetic fibers.



Single Section — TFS

For complete information, write:
WILDMAN JACQUARD CO.
1210 Stanbridge Street
Norristown, Pennsylvania

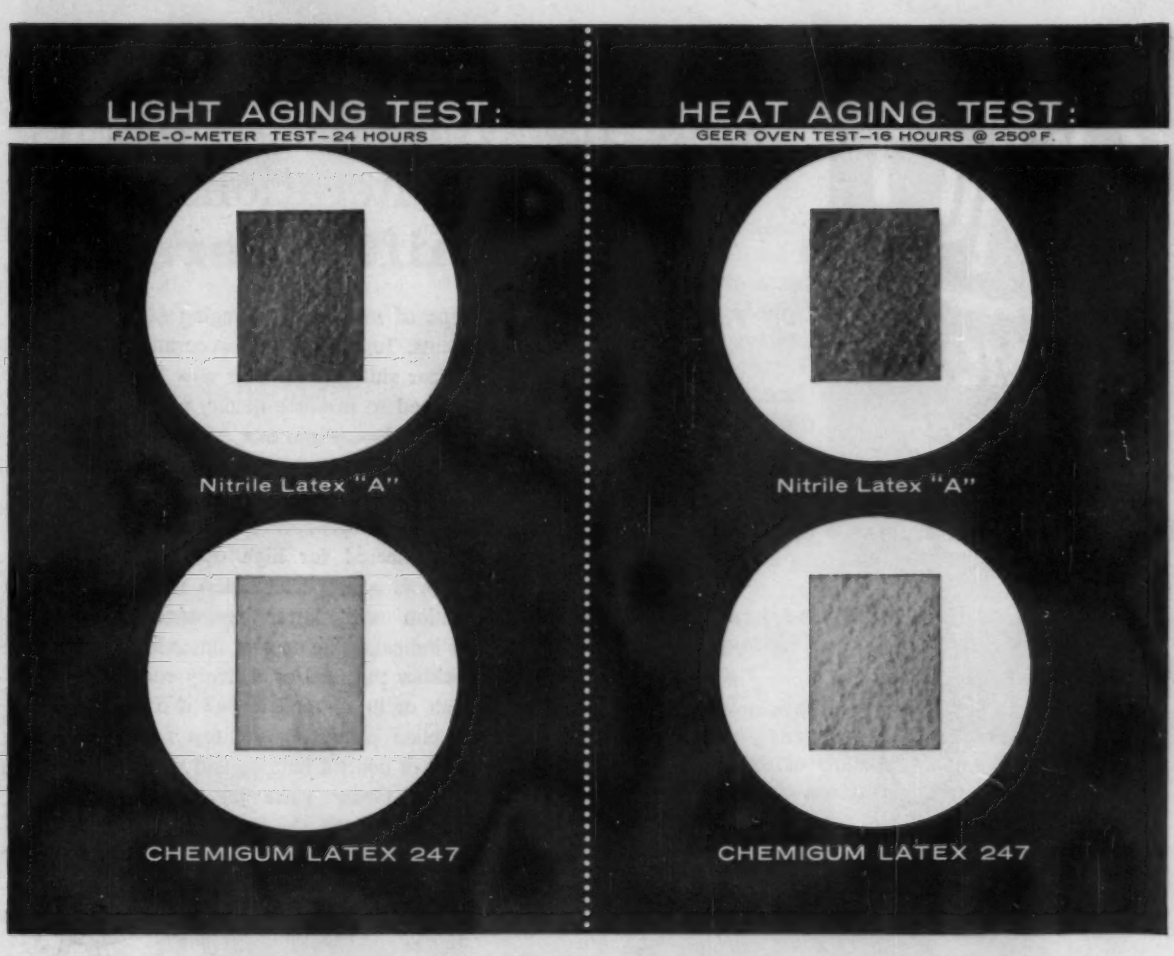
A subsidiary of
Draper Corporation
Hopedale, Mass.



Visit us at Booth #250
Knitting Arts Exhibition
Atlantic City
April 29 - May 3, 1957

WILDMAN JACQUARD

... Leading manufacturers of quality knitting machinery

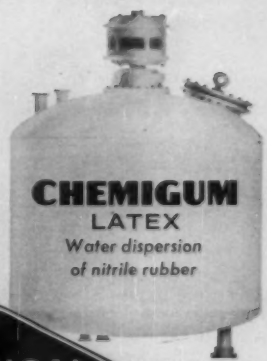


This you've never seen before!

Take a close look at the comparisons pictured above. They illustrate clearly the stable light color of new CHEMIGUM LATEX 247. Here is sustained lightness in color never before achieved in a nitrile latex.

CHEMIGUM LATEX 247 is a medium acrylonitrile content latex of medium particle size. This new latex exhibits substantially superior resistance to color change from heat and light aging. This in turn makes CHEMIGUM LATEX 247 an outstanding candidate for all textile applications where sustained light color is important.

Excellent binding action, permanence, improved body and drape plus resistance to wear, wrinkling, raveling, tearing, snagging and sliding are some of the other interesting properties imparted to textiles by CHEMIGUM LATEX 247. For details plus the latest *Tech Book Bulletins* on promising CHEMIGUM LATEX 247 and other CHEMIGUM Latices for sizes, saturants, finishes and adhesives, just write to: Goodyear, Chemical Division, Akron 16, Ohio.



CHEMICAL
GOODYEAR
DIVISION

Coatings
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CHEMIGUM • PLIOFLEX • PLIOLITE • PLIO-TUF • PLIOVIC • WING-CHEMICALS

High Polymer Resins, Rubbers, Latices and Related Chemicals for the Process Industries

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First high speed gill box for worsteds, synthetics, & blends with draft alterations by **gear shift levers**

For the first time in this type of machinery changing of gears is eliminated for draft adjustments. Immediate and accurate changes are obtained by setting two gear shift levers. This new high speed intersecting gill has been designed to produce quality sliver for the abbreviated system of spinning. ***Delivery*** into one, two or three cans or bi-coil into two cans, with either ball or can creel, allows versatile arrangement of machines for balanced production. ***New weighting system*** with patented single-spring action is efficient and simple. ***The head*** is engineered for high operating speeds with patented triple-thread screws and special fallers for increased strength, trouble-free operation and lower maintenance cost. ***Stop motions*** with different indicating lights give immediate action when a sliver is missing at either the feed or delivery end, in case of lapping in the drafting unit or in the coilers and if a faller pin comes in contact with the plate protecting the top roller. ***Neat enclosure*** with flush mounting of control buttons and yardage stop-motion keeps machines clean. *Please write for our illustrated brochure.*

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DE CONSTRUCTIONS MECANIQUES
MULHOUSE, FRANCE

ATKINSON, HASERICK & CO., INC.
ENGINEERS & AGENTS FOR THE
WORLD'S LEADING TEXTILE MACHINERY
FRAMINGHAM, MASS. · CHARLOTTE 2, N. C.

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TEXTILE BUSINESS

Textile World

MARCH • 1957

THIS MONTH'S HIGHLIGHTS

Quota Plan Draws Protests

•

Cut-Backs To Raise Prices

•

Union Trouble in the North

•

Silk Profits Rebuild a Mill

•

Carpet Sales Get a Boost

•

Good Dividends To Continue

•

Monthly Business Indicators

Quota Plan Stirs Up A Tempest in a Teapot

Repercussions to the Japanese export-quota agreement [TEXTILE WORLD, Feb., pp. 17-19] set in early last month before the textile industry had time to assess the full impact of the plan.

Rep. Henderson Lanham (Dem., Ga.) introduced a House resolution calling for an investigation of the agreement. With support of some 20 or more other House members, Lanham proposed that the House Ways and Means Committee determine to what extent the Administration had "usurped" congressional authority to regulate foreign trade.

And the American Tariff League called the agreement an executive technique that skirts the remedies provided by Congress. It raised the question as to whether Congress must now draw a whole new body of law to accommodate "this major policy shift by the Executive."

Textile-industry leaders and authorities on international law express the opinion that **existing laws permit the Tokyo-Washington textile-export action.**

Although textile spokesmen are not completely satisfied with the Tokyo-controlled program, they regard it as a vast improvement over nothing. Therefore to them such reactions as Rep. Lanham's and the Tariff League's are in the nature of rocking an already leaky boat.

These reactions are another pull in the tug-of-war between the Administration and opponents of its world-trade moves. Washington observers say they will get nowhere—and add that it's doubtful that they were expected to.

•

Actually, there are laws aplenty that could be used to curb Japanese imports.

The antidumping law of 1921, put on the books to protect the U. S. market against dumping by German cartels, probably could be used. This law gives the Treasury Department power to control imports that sell below the U. S. market price.

And the recently revised Agricultural Act, in the section entitled "Agreements Limiting Imports," could be used, in the view of some authorities.

This act authorizes the President to negotiate with foreign countries on agreements to limit exports on agricultural commodities or products manufactured from them. That includes textiles.

But the trouble is not lack of laws.

The Administration is committed to a policy of easier world trade. Therefore it is not searching for curb laws that it could use. It is more interested in avoiding laws that, in the view of injured industries, it should use.

So the noise about whether the import-quota agreement with Japan is legal and whether it was done under the proper law is pretty much a tempest in a teapot.

The real battle this year, if one shapes up, will come when the Administration again tries to get congressional approval for U. S. commitment to the Organization for Trade Cooperation.

This organization is the body proposed to become administra-

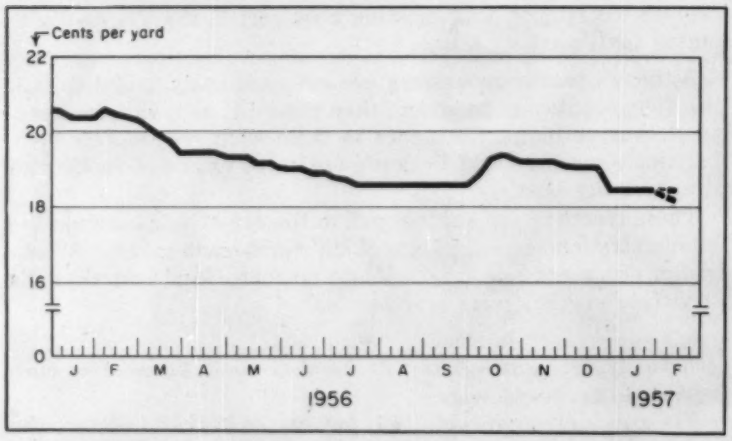
tive agent for trade and tariff agreements. The U. S. and 34 other countries are parties to it.

Last year textile-industry leaders were strongly opposed to OTC and were largely instrumental in defeating it. Administration people are hopeful now that the Japanese quota agreement will lessen the industry's opposition this year and OTC will be accepted.

The textile industry is not likely to go along on OTC. Opposition may not be as strong as last year, if the Japanese quota system shows promise of working satisfactorily up to the time OTC comes up in Congress. And whatever opposition develops may not be able to gain as much on-the-fence support as last year.

But the export-quota agreement is still controlled "voluntarily" from Tokyo, and mills will be wary of OTC until they see how the wind blows with the quota system.

Cut-Backs To Raise Prices



PRINT-CLOTH PRICE. Except for October spurt, trend has been down.

More cotton and rayon mills reduced production last month in an effort to bolster weak prices.

In a month of uncertainty—with the stock market dropping to a dramatic new 1956-7 low, commodity prices wavering, and bellwethers like autos and steel feeling their way—textile buyers backed off to watch things simmer a while longer before making important commitments.

Like all other buyers, textile buyers are never quick to do business in a declining market. And except for a brief upward spurt last October, cotton-textile prices have trended downward for more than a year.

Market-indicator 80-square print cloth drifted down from better than 20¢ a yard early last year to 18¼ to 18½¢ last summer. In October, 39-in. 80x80 spurted to 19½¢ and since then has faded back to little better than 18¢.

While more-efficient mills can live at that price, they won't get rich; and weak sisters can't make the grade.

Harder hit than 80-square are coarser constructions, particularly denims, ducks, twills, etc. Cut-backs occurred in a few

Bonanza in Wool

Woolen and worsted mills have none of the sales woes currently bothering cotton and rayon mills.

In the lingo of industry economists, wool "bottomed out" in 1954, and everything has been fine since.

The record of woven woolen and worsted goods looks like this (in million yards):

1953 — 338
1954 — 279
1955 — 310
1956 — 344

And 1957 is adding up to another good year.

•

Some indicators of how things are with wool are:

The price of wool is firm, and rising. Mills are paying 26 to 28¢ a pound more for wool now than this time last year. And reports from Australia and New Zealand are that the 1956 clip is exhausted and prices on the 1957 clip are going up.

It's another month before 1957 wool will be in good supply. With mill stocks low, some bidding may develop—in which case, prices will immediately spiral.

Fall fabrics are sold ahead for about three months at 5 to 15¢ a yard above prices this time last year. No prospects for lower prices are in sight.

•

Price resistance has developed among carpet mills to the price of carpet wool, and worsted-yarn knitters are trying to back off from the high prices of hosiery and sweater yarns.

But mills say the resistance can't last. Carpet sales are at an all-time high, and wool-sweater demand is strong.

Carpet Mills Are Busy

Carpet manufacturers, after a sales-record-breaking year in 1956, are well pleased with 1957 prospects.

Last month Firth Carpet Co. announced its regular quarterly dividend and reported its outlook for 1957. Orders on hand are ahead of last year, and the company expects a "substantial increase" in dollar volume and earnings.

mills on these constructions last year and more in January of this year.

But even as cut-backs spread, signs were developing that gave mills hope that curtailment will not grow very serious nor last indefinitely.

Cutters and sewers of work clothing were coming into the market for fill-in orders, and reports are that their sales are continuing at a healthy pace. And the heavy season for denims is just beginning.

If mill curtailment cuts significantly into the flow of goods, the supply of coarse goods might even be tight before summer.

Union Trouble in the North

Mills-vs.-union wage-rate skirmishing started early last month in New England.

With contracts in about 100 New England cotton and rayon mills running out or subject to reopening this year and April 15 the deadline for agreement, Bates Mfg. Co. kicked off the contest by proposing a 14¢-an-hour wage cut for its 6,000 employees in five plants.

The TWUA countered by labeling the pay-cut proposal "absurd" but promising that only a "modest" increase will be sought.

There are strong pressures on both sides, and the hassle may become a lively one.

Favoring the union are these factors:

- Cotton and rayon mills in the South raised wages late last year, in general following the 10¢-an-hour increase started by J. P. Stevens & Co. in October. The union complains that, these raises put wages in cotton and rayon mills in the South considerably above those in comparable New England mills.
- This year will see a widespread round of wage raises in other industries and price increases in consumer products, most economists agree. That's why President Eisenhower keeps warning against inflation. The increased cost of living will hit textile workers the same as any other workers.

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In the mills' favor are these factors:

- Weak prices of textile goods are being highlighted now by production cut-backs in many cotton and rayon mills. Bates itself cut production 30 to 40% in its synthetics mills earlier this year. The way the union puts it is that these cut-backs will make it easier for the mills "to plead poverty."
- Profits in late 1956 and so far this year have been considerably under the good records turned in by mills for those two quarters a year ago.

While Bates' fourth-quarter statement is not available yet, its third-quarter net dropped from $1,046,145 in 1955 to $778,890. Berkshire Hathaway reported a fourth-quarter loss of $185,082 against a 1955 fourth-quarter profit of $650,250.

What will happen in April is a guess right now. Both Bates and the union say they intend to stick by their guns. Berkshire Hathaway has told TWUA it wants to maintain present wage rates.

If it comes to an impasse this year, the union is at a disadvantage. A work stoppage, if it didn't last too long, would work in the mills' favor by clearing out inventories and firming prices.

Union Won't Fight Work Laws

Right-to-work laws in some Southern states, a thorn to unions, won't be fought in the state legislatures this year, if the union attitude in South Carolina is a criterion.

President Earle R. Britton of the AFL's Federation of Labor in South Carolina says that he will not approve or endorse any legislative fight this year on the right-to-work law.

The two main reasons are: (1) the union hasn't got enough strength in the State Assembly this year (only 20 of 124 votes), and the AFL-CIO merger won't take place until the 22nd and 23rd of this month.

Hosiery Market Changes

Hosiery mills are watching two changing patterns in the market: unbranded women's hosiery and sized men's socks.

Steady strength in the price of unbranded lines of women's hosiery, due, mills report, to a shortening supply of nylon, has been in evidence for some weeks.

Late last year the supply and demand of hosiery nylon reached the point that producers could up prices 5%. So far this year, consumption has run ahead of production.

With their supply of nylon being reduced, mills are hesitant to enter "package deals" with retailers for unbranded-hosiery store promotions.

●

Men's sized socks give some indication of staging a comeback.

In the size range of 9 to 13, sized socks have been going better than some qualities of stretch socks. Argyles, panels, and several plain styles in the 39¢ price range have recently been moving better than stretchies.

Although the trend so far is far short of a surge, it is causing hosiery manufacturers to keep a close finger on the market pulse.

TEXTILE BUSINESS

Finishers Get Pressure

Finishing plants, whose fortunes fluctuate largely with those of cotton and rayon mills, find several familiar pressures working on them.

In the present weak market for cottons and rayons, converters are passing the inventory ball to finishers. With their own warehouses all but empty, converters merely order fabrics from finishers as they need them.

And as always occurs in a weak market, pressure for short runs is mounting.

Yardage turned out by finishers is estimated at about 20% under the same period a year ago. But dollar volume is holding up better as a result of price increases to pass on added supplies and labor costs.

Best business is turning up in the so-called wash-and-wear lines. Some finishers report that two-thirds to three-quarters of their current business is in these finishes.

Shoe Linings in Uptrend

Fabrics for shoe linings are enjoying a booming market.

Reports last month were that shoe production is running well ahead of last year. In New England, where 35 to 40% of the nation's shoes were made last year, companies reported sales running 10 to 15% ahead of this time in 1956.

Cone Starts Knitting

Cone Mills struck out on a new path early this year when it went into the knitting business.

One of the biggest cotton weavers in the country and always identified as a giant in the denim field, Cone has been developing some slack as denim receded from its high demand of a few years ago.

The move into knitted fabrics is explained as a style move. Cone plans to style its knitted fabrics to coordinate with some of its more popular woven styles. The program is called "color service" coordination.

At Schwarzenbach Huber–
Silk Profits Rebuild a Mill

R. M. SCHWARZENBACH and CHARLES GOCHENAUR. Close-fingered control and imagination pay off.

The rising popularity of silk fabrics is helping Schwarzenbach Huber Co. come out of a long dry spell.

In 1950, the company had trouble just staying in business.

In 1955, it finished a $1-million modernizing job on a weaving mill at Altoona, Pa.—at a time when nearly everybody else with a million dollars to spend was scrambling Southward.

In 1956, it completed a $1½-million expansion on its mill at Front Royal, Va.

Money for the improvements came out of earnings on sales that doubled in the last four years.

That's quite a change for Schwarzenbach Huber.

Founded in Switzerland in 1829 by the present president's great-grandfather, it began operations in the United States in 1881. By the 1920's, it owned 17 U. S. and European mills with 4,000 looms weaving silk fabrics. Sales ran $30- to $40-million.

By 1950, 90% of those sales had evaporated and most of the mills were gone. The company was left with only two run-down weaving mills, a throwing and stretch-yarn plant, a dyeing-and-finishing operation—and antiquated methods and inept personnel.

That's when 33-year-old, fourth-generation Robert M. Schwarzenbach took over as president of the shaky company. One of the things inherited by Schwarzenbach was a recommendation by the former president that one of the two mills the company still had be liquidated.

•

Schwarzenbach's first move as president was to correct the poor personnel situation. His weeding-out process was particularly heavy in the company's sales departments.

Throughout the life of the company, even in its sinking days, sales had been limited to products asked for by a few big customers. Not satisfied with "order-takers," Schwarzenbach hired young sales executives in tune with his notions of developing new products and aggressive selling to a longer list of customers.

The tempo at Schwarzenbach Huber immediately picked up.

Instead of following his predecessor's recommendation to close the Front Royal mill, Schwarzenbach and his new wheel horses took stock. About the only plus value they found was a work

force highly skilled in handling silk, perhaps the most difficult of all fabrics to weave.

The decision was to make some money out of this skill. So they embarked on a venture brand new to Schwarzenbach Huber —styling and merchandising novelty silk and silk-mixture fabrics.

The second move was to do something about the run-down buildings and machinery.

Wholesale rebuilding began in 1951. Floors and walls were renovated, air conditioning installed, a 6,000-sq.-ft. addition to the weave room made, and new C&K S-6 looms installed.

Then the fading market of late 1953 and 1954 set in. For many months the plant operated at little more than 50% of rated capacity.

These were lean months for Schwarzenbach Huber, **but by 1955 things were looking up.** Efficiency reached an average of 89%—quite respectable for automatic silk weaving—and cloth quality was up to industry standards.

Perhaps more important, customers gave signs of being taken by silk fabrics.

By 1956, Schwarzenbach was ready to move ahead with his Front Royal expansion. He doled out $150,000 for another 18,000 sq. ft. of air-conditioned area for 50 more new looms. And another $1/4-million expenditure is slated for Front Royal.

●

Schwarzenbach's formula for success in the fast-moving high-style-fabric field is based on alertness and flexibility in both the manufacturing and sales organizations.

If pressed, he'll go into details on four prime points:

• **The ability to switch quickly** from one fabric to another

Almost every year the company has had a new fabric to offer its customers. Last year, for example, two new fabrics were in the large-volume sales bracket: silk-and-cotton mixtures of patterned goods and woven yarn-dyed patterns.

• **Merchandising**

The company's sales organization maintains constant personal contact with its customers. It sees that a customer's fabrics are delivered at the time he wants them in the amount he wants.

All sales are under the supervision of a single sales manager, and individual fabric developments are followed closely for wide distribution.

• **Quality of product** and flexibility of machinery

Two youngsters head the Front Royal operations. Charles Gochenaur, 33 years old, is the local manager. Kurt Trueb, 30 years old, was the former manager and is now vice president and general manager of all production facilities of the company.

Schwarzenbach counts heavily on these two men to keep equipment up to date and make the best use of employee skills.

• **Holding costs down**

Schwarzenbach says a closely formed organization helps in attaining economical operations. While he is quick to point out that he doesn't think the era of big mills is closing, he says modern, compact, medium-sized mills can be operated more efficiently than large mills if management men set their minds to do the job.

To date, he has done well for his company. He has shown a profit every year he has been president, increased sales, and modernized on a pay-as-you-go basis.

Prices Press Upward

With weak prices in cottons and rayons dramatized by production curtailment, **the upward pressure of textile prices in general is easy to overlook.**

In mid-February Jos. Bancroft & Sons announced a schedule of dyeing increases ranging from ½¢ to 2¢ a yard effective Feb. 25.

This increase followed earlier increases by such finishers as Rock Hill, Modern Central, Reeves, and Indian Orchard.

Prices above a year ago are in effect on woolen and worsted fabrics, worsted knitting yarns, several styles of hosiery, blankets, and carpets.

When present cotton and rayon cut-backs correct market prices, the whole textile-price picture will be favorable.

Color Note: Blue Is Hot

Blues and toned-down grays are winning the race for men's clothing colors this spring. Losers are bright colors and pastels.

Army Outmodes Duck

Cotton duck, a fabulous performer in World War II, is on its way out as the shelter mainstay of the army.

It's too heavy and bulky for atomic-age military operations, and it can't be used for multiple-fabric protection against nuclear-weapons heat.

Quartermaster Corps research has proved these points, Dr. S. J. Kennedy, Chief, Textile Clothing & Footwear Div., reports.

But so far Quartermaster doesn't know just what fabrics will replace duck.

Whatever it is will have a lush market in case of war. In World War II, duck rose from 170-million linear yards in 1939 to 606.3-million in 1942.

Carpet Sales Get a Boost

MASLAND'S GERALD C. DENEBRINK. "Good market in carpet trade-in."

Carpet sales in 1956 reached an all-time high of $600-million, partly as a result of carpet men smartening up on two of the merchandising methods used to sell automobiles and appliances: time payments and trade-ins.

Installment payment now accounts for 70% of the carpet sales in furniture stores, more than 50% in department stores, and 33% in specialty stores.

With this sales technique a proven success, **carpet manufacturers and retailers are now exploring trade-ins.**

One of the leaders in this activity is C. H. Masland & Sons, carpet manufacturers. A little over a year ago, Masland retained a marketing consultant to carry on research in the field of carpet trade-ins and to find out what is actually being done in carpet trade-in programs.

Masland's vice president, Gerald C. Denebrink, thinks the device has intriguing possibilities. "This merchandising method may become as important as time payments," he says.

•

Successful trade-in programs are already in operation all over the country, and retailers generally are satisfied with results. Many stores, finding a brisk market on a trade-in basis, are expanding their sales programs.

The used carpets taken in on trades sell readily in most areas, and one West Coast retailer reports a gross margin of 61%.

While retailer experience varies, most carpets offered in trade on new ones can be reconditioned for resale. In some areas, as high as 98.5% of trade-in carpet can be resold; in others, only 90%.

Best prospects for sale of new carpets on a trade-in basis are families changing residences. Over all, 20% of the families in the U. S. buy 49% of the carpets and carpeting.

With the lion's share of new-home building now in the group of owners changing from good homes to larger and better homes, the trade-in method helps retailers pick up more customers for both new and reconditioned carpets.

"Tight" Money To Loosen?

Textile men are hearing more and more about "tight" money.

In recent weeks the present high interest rates on borrowed capital have been cited as one reason for such things as:

- Hand-to-mouth buying by both mills and their customers.
- Threatened delay of mill modernization.
- Pickup in textile sales at the expense of durable goods.
- Sale of one or more mills—and a host of other things.

•

If tight money is having much to do with such textile activities and freer money would improve them, money news out of Europe may be a hopeful sign.

Word is that Germany, in two cuts in the last six months, reduced its discount rate from 5.5% to 4.5.

In London, the Government bond market has improved and there is some talk that the discount rate may be reduced.

What's done in Europe may not follow in the U. S., but financial men say it often does. They point out that the world money market is so sensitive and interrelated among countries that anything that's done to money in Europe has an effect here.

Auto Fabrics Zoom

Mills on automobile fabrics got a heart-warming report the middle of last month.

Auto output for the week ending Feb. 16 zoomed 17% above the same period in 1956 and put production for the year above that of last year for the first time.

That means more fabrics was used. Each four-door car uses an average of some 17 yds. of fabric, plus cord for five new tires.

What makes the news so welcome is that the usually optimistic auto experts have been showing unaccustomed caution after the dip in production last year.

Good Dividends To Continue

Holders of textile stocks can expect good dividend yields in 1957, but no real bullish rise in prices is likely.

With the stock market in general acting unfavorably, even for issues in the glamour industries, and little encouragement turning up in year-end mill statements, textile issues seem to have little chance to improve their price action of the last year or two.

Favorable first-quarter earnings by mills last year led many investors to hope for significant price improvement. But except for a couple of upward wavers, most issues held to their depressed state.

But the time to buy textile stocks is when prices are depressed, many experts say. The same experts tell you that it takes courage to do so.

"The investor with courage who is careful in his selection should be amply rewarded for his investment in textiles," brokers of Alester G. Furman Co., which deals heavily in textile stocks, think.

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Here's how they look at some of the textile issues:

The shares of the synthetic-fiber producers such as American Viscose, Beaunit Mills, Celanese, Industrial Rayon, and American Enka have been the hardest hit of all textile issues. In general, the rayon business of these companies was not good during 1956 because of keen competition from nylon and a strong promotion of cotton fabrics.

The shares of these producers, since they are depressed, offer excellent yields. The average yield on these five stocks is almost 7%, with earnings that amply cover their dividends.

The shares of large leading textile mills such as Burlington, J. P. Stevens, United Merchants, Lowenstein, and Cone showed no great price improvement during 1956. However, they maintained their earnings and should continue to pay the same dividends as they did in 1956.

For example, Burlington paid out only 60% of its earnings in dividends, J. P. Stevens 70%, United Merchants 42%, Lowenstein 56%, and Cone 50%.

The satisfactory yield rate is also true for the smaller independent mills.

The market for these shares has been inactive during the past year, and the average yield is somewhat higher than that of the general market. Most of the shares have book values well above their market prices; and, again, their earnings appear to provide good dividend coverage.

•

Some reductions in dividends have taken place. Bates Mfg. Co. dropped its dividend from 20 to 12½¢ and Berkshire Hathaway from 25 to 15¢. (A lot of noise was made about Textron reducing its dividends from 40 to 25¢, but Textron is no longer a textile company.)

But the stock shares of the mills that have reduced dividends are infinitesimal compared to the textile shares where no reduction has been made. It is not likely that dividend reductions will be serious or widespread among textile issues.

The Cost of Getting Big

Many astute businessmen see a fine difference **between a company growing and a company merely getting big.**

In late weeks a few less-astute businessmen, particularly stockholders, have had a ringside seat for a good demonstration of that axiom by Textron and Burlington.

Sometimes described as a "buy-a-company-a-week" corporation, Textron (now only about 25% textile) last month clipped stockholder dividends from 40¢ to 25¢.

Burlington hasn't reduced dividends yet, but there's been talk of it.

These two companies have been the star mergers in the textile industry in the last few years. And it was largely their dividend statements that led to a rash of newspaper articles about the "unprofitable" textile industry last month.

So some seasoned textile men are now repeating another textile-industry axiom: "You can't get too big in textiles and last. Nobody ever has."

Burlington, for the time being, plans no further expansion, J. Spencer Lane, chairman of the board, said at a stockholders' meeting last month. The reason given was current money-market conditions.

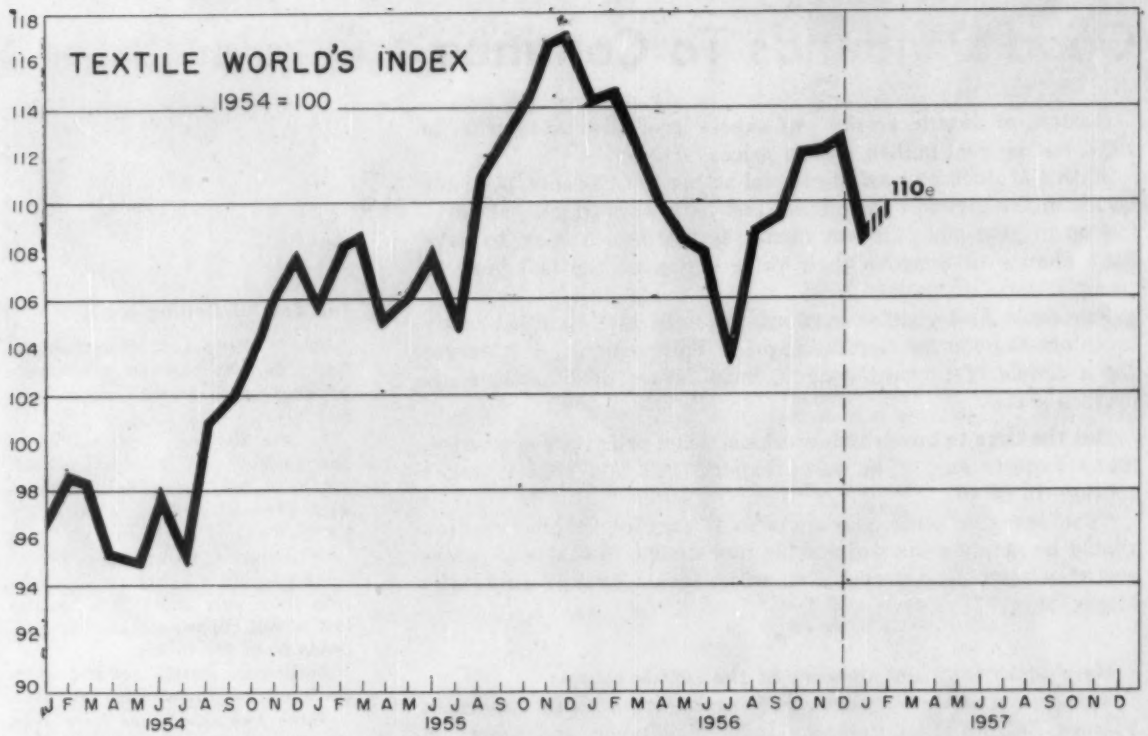
Self-Service Textiles Gain

Last year textile men began to hear of **giant edge-of-town discount department stores** trying out the self-service (shopping carts and all) sales technique.

Among the most publicized operations were the Fields' stores in Fall River, Mass., and Manchester, N. H.

Word now is that these "pilot" stores are so successful that Fields is planning 14 new stores this year to bring the company's total to 49, with annual sales of more than $100-million.

With a history of mixed blessings from dealing with huge retailers, mills are apt to cast a wary eye on this mushrooming outlet for textiles.



Index of manhours worked in the textile industry adjusted for changes in productivity

How To Read the Index

The chart shows an estimated index of 110 as the current measure of physical production in February. This means that textile-mill production was 10% greater in February than the average for the year 1954. The index may be related to February, 1956, when the index stood at 115, or to January, 1957, at 109. Compared with a year ago, the current index is 5 points, or 4.3%, below the previous February. Compared with January, the current index is 1 point, or 0.9% above the previous month.

Textile World's Monthly Indicators

	Latest Month	Last Month	Year Ago
Textile World's Index (1954 = 100)	**110**	**109**	**115**
Employment (thousands) B.L.S.	1,023	1,034	1,083
Production Workers (thousands) B.L.S.	932	943	991
Weekly Earnings B.L.S.	$58.65	$60.30	$57.37
Hourly Earnings B.L.S.	$1.50	$1.50	$1.42
Weekly Hours Worked B.L.S.	39.1	40.2	40.4
Production Index (1947–1949 = 100) F.R.B.	105	98	111
Wholesale Price Index (1947–1949 = 100) B.L.S.	95.8	95.6	95.7
Manufacturers' Sales (million $) Commerce	$1,146	$1,184	$1,124
Manufacturers' Inventories (million $) Commerce	$2,666	$2,632	$2,471
Inventories to Sales Ratio	2.33	2.22	2.19
Exports (Million $) Commerce	$132.7	$151.9	$81.6
Imports (Million $) Commerce	75.0	92.0	87.4
Stock Price Index (1935–1939 = 100) Standard & Poor's	234.8	231.2	273.1
Failures (number) Dun and Bradstreet	10	2	7

National Economic Indicators

	Latest Month	Last Month	Year Ago
Industrial Production (1947–1949 = 100) F.R.B.	146	147	143
Consumer Prices (1947–1949 = 100) B.L.S.	118.2	118	114.6
Wholesale Prices (1947–1949 = 100) B.L.S.	116.9	116.3	111.9
Population (millions) Census	169.7	169.4	166.8
Unemployment (thousands) Census	2.9	2.5	2.9
Employment (millions) Census	62.9	64.6	62.9
Personal Income (billion $) Commerce	$333.5	$333.6	$316.7

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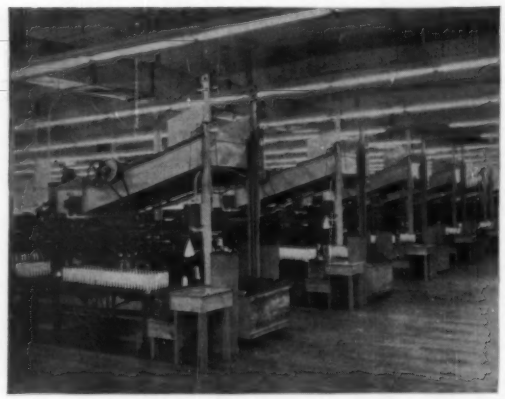
to take advantage of large package spinning, more yarn on filling bobbins, more uniform bunches, better weaving bobbins, and inspected yarn, all of which go to make a better fabric.

Abbott Traveling Spindle Package Winders

Automatic Cone or Tube Winders for warping, dyeing, twisting, quilling, sales.

Can be equipped with any one of a variety of slub catchers and inspection devices.

Production up to 1000 bobbins per hour per operator.



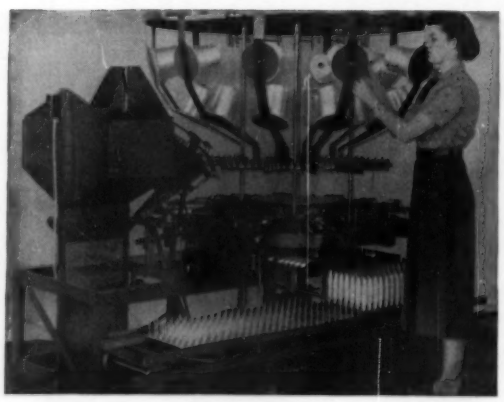
Abbott Traveling Spindle Automatic Quillers

For winding coarse cotton, worsted, woolen yarns, etc., equipped to doff automatically into baskets, or stack automatically into boxes.

Abbott Model II High Speed Automatic Quillers Over 10,000 RPM

For winding fine cotton, spun synthetics, filament rayon and nylon, etc. with automatic pinboard attachment or wide belt inspection conveyor, or bobbin stacker.

Production up to 2500 bobbins per hour per operator.



Abbott Fully Automatic Radial Quiller

For smaller lots and widely diversified mills.

For winding cotton, spun rayon, filament rayon, worsted, wool, etc.

Can be arranged to deliver bobbins to Pinboard Attachment, or into baskets, or into wide belt conveyor.

One operator can run several machines producing up to 2000 bobbins per hour per operator.

Can be equipped with measured yardage device for two-shuttle looms.

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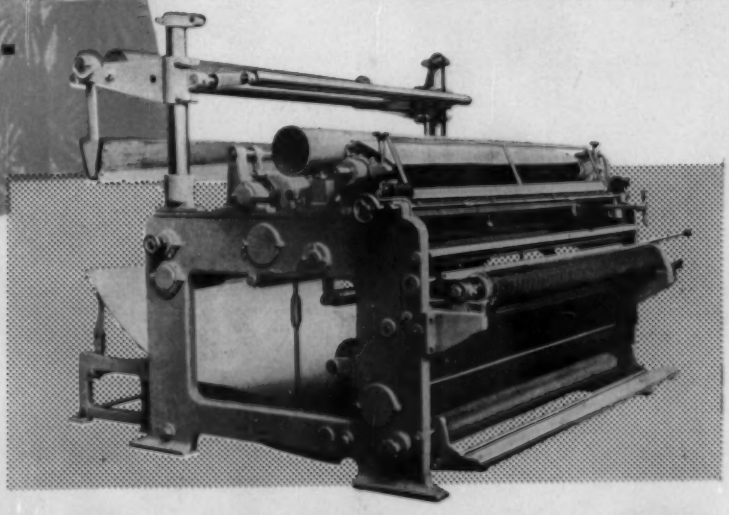

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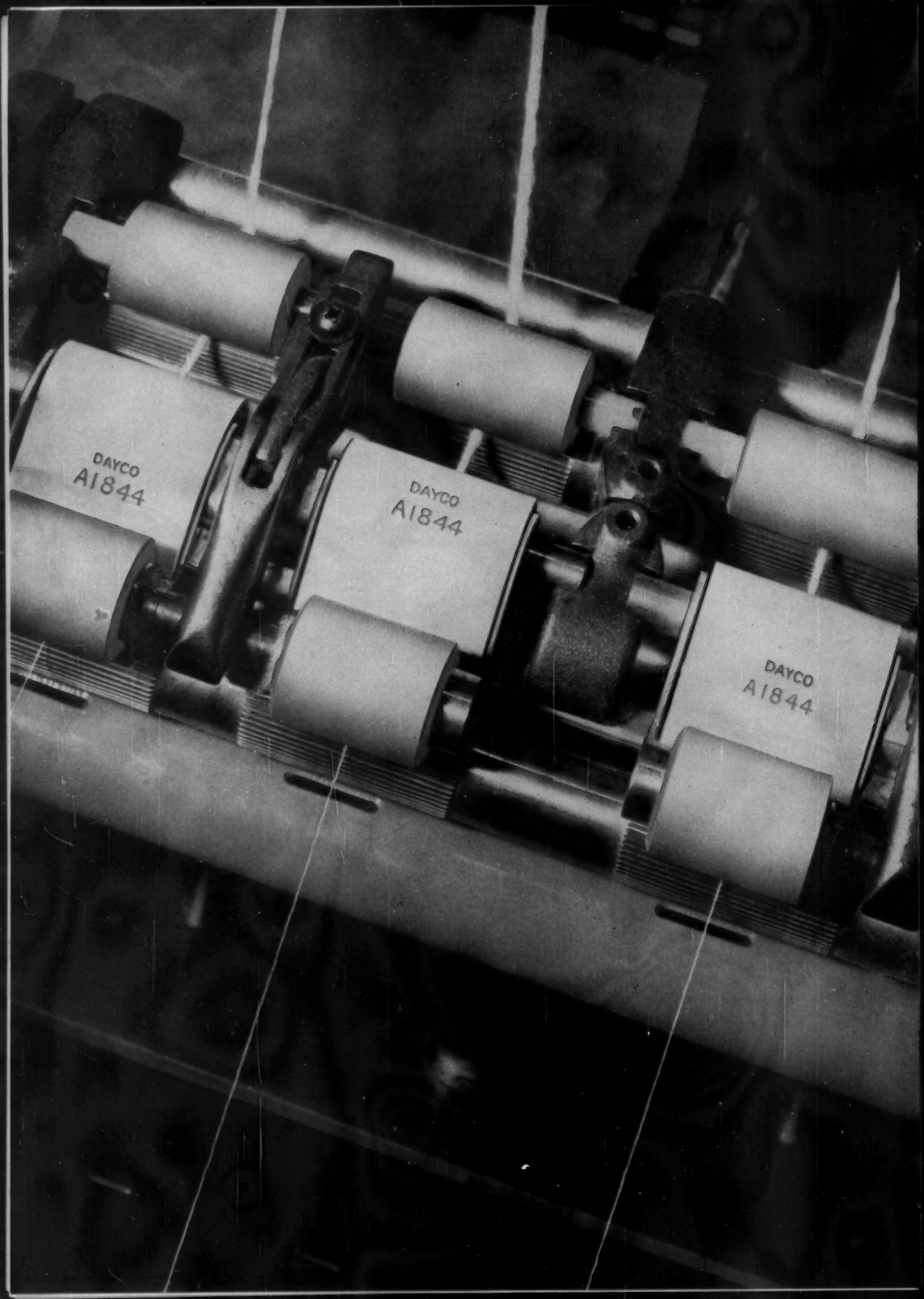
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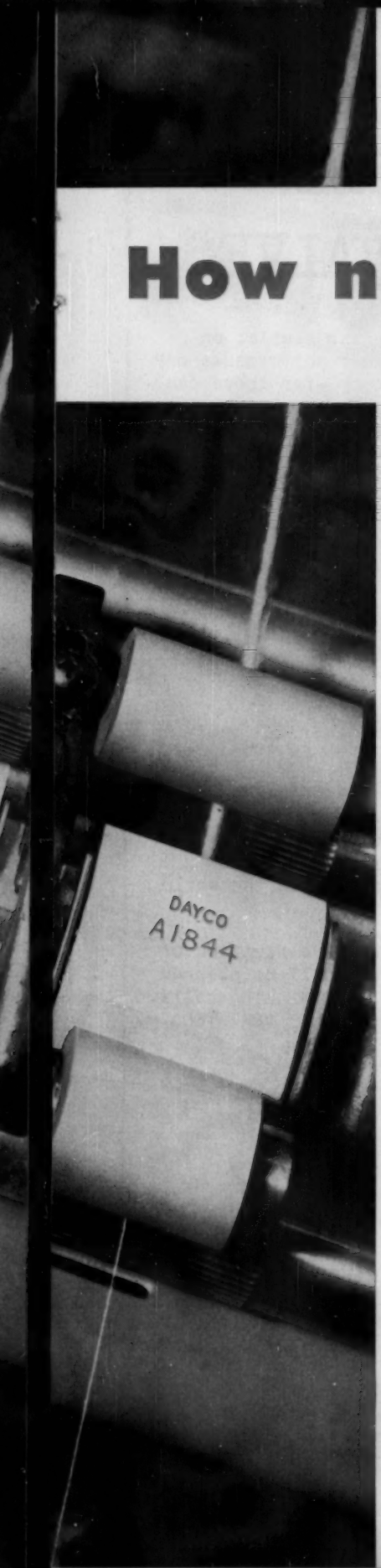


How new Dayco cots reduce lap-ups

caused by sweaty or gummy surface, static, and fiber adherence during shut downs.

The easiest way to reduce all four of the major causes of lap-ups is to install *all new* Dayco EW661 Cots. Here's why:

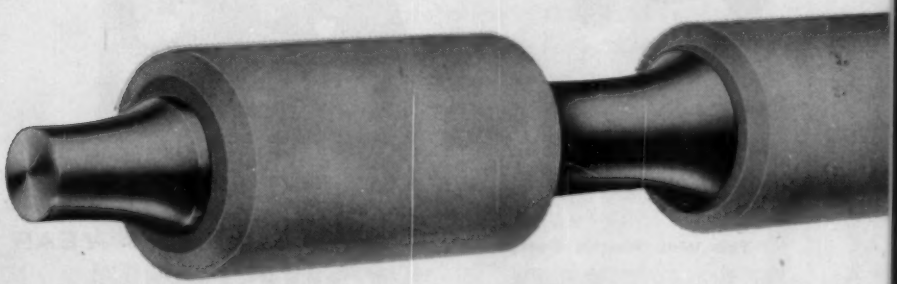
Some cots on hot, humid days collect a moisture film on their surface. Fibers adhere momentarily — and lap-ups slow production — cause inferior yarn quality. The new EVERGREEN compounds in Dayco EW661 Cots, however, resist fiber adherence—a major cause on lap-ups. It's as simple as that.

If the problem of gummy, sticky cots bothers you, new Dayco EW661 Cots are the answer. New EVERGREEN compounds always maintain their constantly correct, co-efficient of friction. They contain no substances to soften under the hottest, most humid conditions.

Frictional static build-up in ordinary cots attracts fibers to cause lap-ups. Dayco EW661 Cots, however, actually dissipate static electricity. Special compounding makes this possible, eliminating one more cause of lap-ups.

Finally, new Dayco EW661 Cots assure quick Monday morning starts. Compounded of materials which stubbornly resist chemicals or oils, Daycos are ready to instantly resume quality drafting after week-end shut down.

Complete elimination of lap-ups is an ideal situation which cots alone cannot assure. However, to move nearer spinning perfection, install new Dayco EW661 Cots on your frames. You'll increase yarn quality and production . . . reduce waste. For immediate facts write *The Dayton Rubber Company, Textile Division, 401 S. C. National Bank Bldg., Greenville, S. C.*



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Dayco and Thorobred Products for better spinning and weaving.

Inside Story on POWELL STEEL VALVES

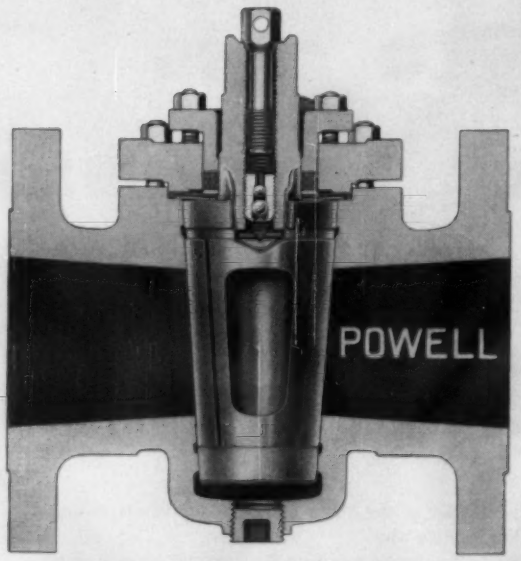

FIG. 3059--(Sectional)--A.S.A. 300-pound Steel Lubricated Plug Valve.

FIG. 2456 SS--OS&Y Gate Valve--1/16 Raised Face Separate Yoke Arms. Flanges are in accordance with ASA B16.5.

Steel Valves may appear similar on the outside. But their performance may be quite another story--for there can be a big difference in the metal, in design and in manufacture. And the inside story on Powell Steel Valves is that every valve has PERFORMANCE VERIFIED.

Only the finest materials are used in Powell Steel Valves. And painstaking quality control is rigidly enforced through each step of manufacture. For example, every machining operation is accurately gauged. All parts are thoroughly cleaned and degreased. As a final step in manufacture, EVERY POWELL STEEL VALVE IS GIVEN AN ACTUAL LINE TEST.

Because of Powell's painstaking quality control, plant shutdown through valve failure is practically unknown. Records from refineries, power and industrial plants the world over prove it.

Consult your Powell Valve distributor. If none is near you, we'll be pleased to tell you about our COMPLETE quality line which has PERFORMANCE VERIFIED.

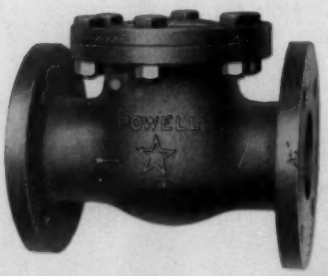

Fig. 2433 SS--Stainless Steel Bolted Cap Swing Check Valve for 150 pounds W.P.

PERFORMANCE PV VERIFIED

The Wm. Powell Company, Cincinnati 22, Ohio . . . 111th YEAR

POWELL VALVES

BRONZE, IRON, STEEL AND CORROSION RESISTANT VALVES

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For accurate fit...
For sound yarn packages...
For smooth delivery...

use SONOCO precision-made CONES

SONOCO cones are made to fit the winding mandrel accurately. This feature is combined with special SONOCO cone surfaces, developed through extensive research, to produce a cone which permits precision winding. The result is a sound package that will deliver at even tension under high speed working conditions.

SONOCO cones are made in a wide variety of tapers and finishes to suit every kind of yarn. Various methods for yarn identification can also be supplied. For complete information, and help with your yarn packaging problems, consult your SONOCO sales-engineer, or write us direct.

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SONOCO PRODUCTS COMPANY

MAIN OFFICE — HARTSVILLE, S. C.

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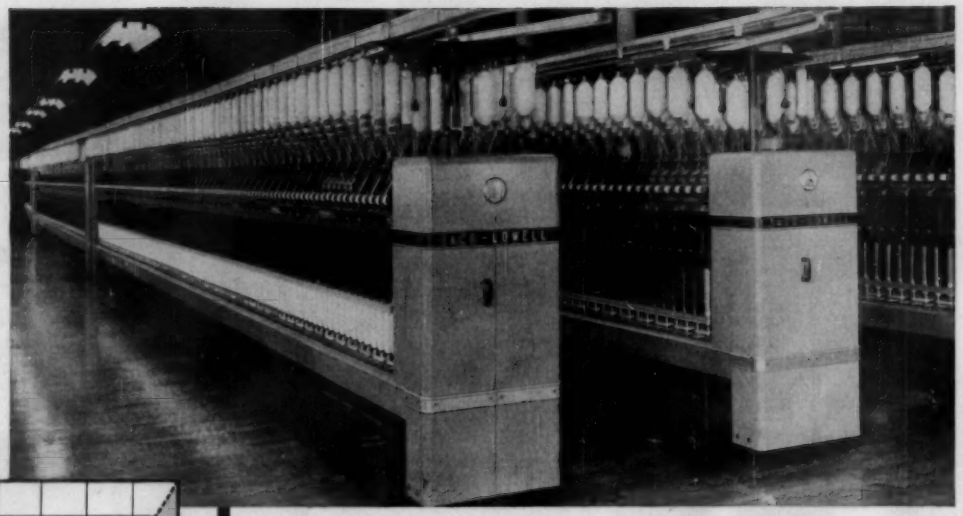
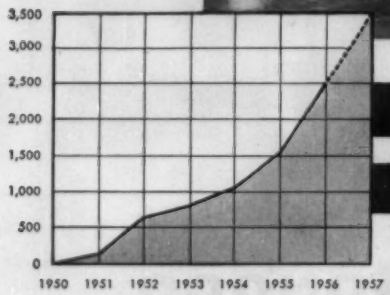




MAKE BETTER YARN AT LOWER COST

by SACO-LOWELLIZING*

An important step in a Saco-Lowellizing program is the installation of Gwaltney Spinning Frames. The ever-increasing use of these modern frames is clearly indicated in the chart above — there are now over 600,000 spindles in operation.

***SACO-LOWELLIZE (Verb)**

(A) To utilize floor space so as to improve the flow of production.

(B) To co-ordinate the successive steps in processing.

(C) To reduce waste, spoilage, and unnecessary handling of stock.

(D) To realize the greatest economies in operating and maintenance costs.

The Gwaltney Room is the *Showplace* of any mill. It's attractive, clean, and modern — a joy to work in, to manage, or to own. There are fewer and happier operatives who produce more per man hour, *at lower costs* and *better profits.*

Profit from the experience gained by over 90 mills operating 600,000 Gwaltney spindles 'round the clock . . . spinning cotton, synthetic, worsted, and blend yarns . . . meeting the strictest standards of *quality, productivity,* and *economy.*

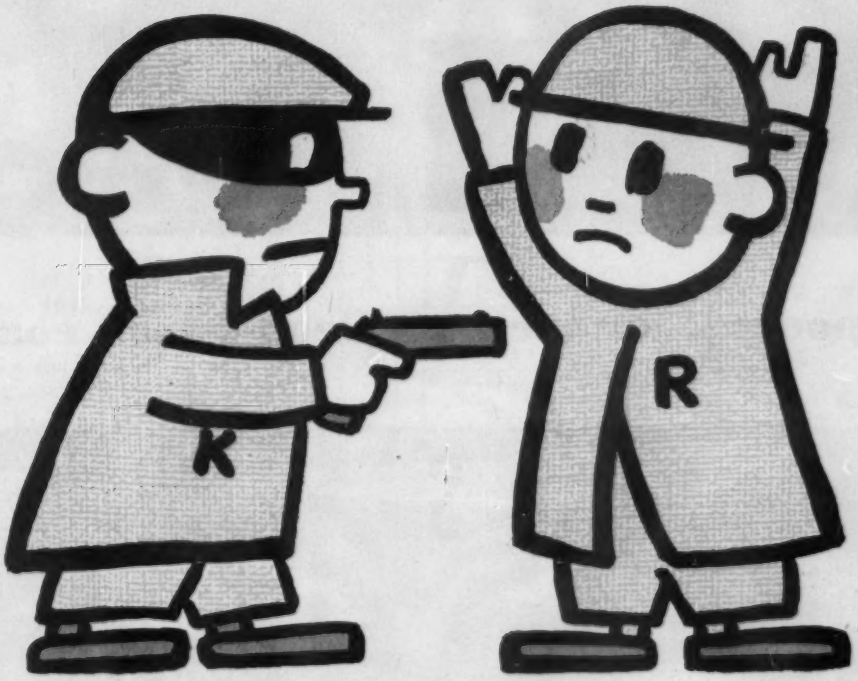
Join these modern mills. Produce your yarns with pride, satisfaction and assurance — with Gwaltney Spinning.

ASK YOUR NEAREST SACO-LOWELL OFFICE FOR A "FORECAST OF SAVINGS" BASED ON A SACO-LOWELLIZING PROGRAM.

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON 10, MASS.

Shops at BIDDEFORD and SACO, MAINE and SANFORD, N. C. Sales Offices at CHARLOTTE, GREENSBORO, GREENVILLE, ATLANTA



they never do anything shady

Gelva KR emulsions on cottons and synthetics eliminate the expense and inconvenience of solvent treatments. They are aqueous dispersions of water-insoluble polymers.

Gelva KR's are polyvinyl acetate emulsions which meet an extremely wide range of application requirements and offer an excellent choice as to viscosity, particle size, film-forming properties, and compounding stability.

Gelva KR's are made and sold only by Shawinigan Resins Corporation. Shawinigan pioneered the production of polyvinyl acetate resins in 1929 and evolved the Gelva KR emulsions in 1944. For continued progress in research, production and application of polyvinyl resins for the textile industry—look to Shawinigan. For full details write Shawinigan Resins Corporation, Department 4303, Springfield 1, Mass.

SALES OFFICES: ATLANTA CHICAGO LOS ANGELES
NEW YORK SAN FRANCISCO

GELVA® KR ***emulsions for textiles***

SHAWINIGAN RESINS

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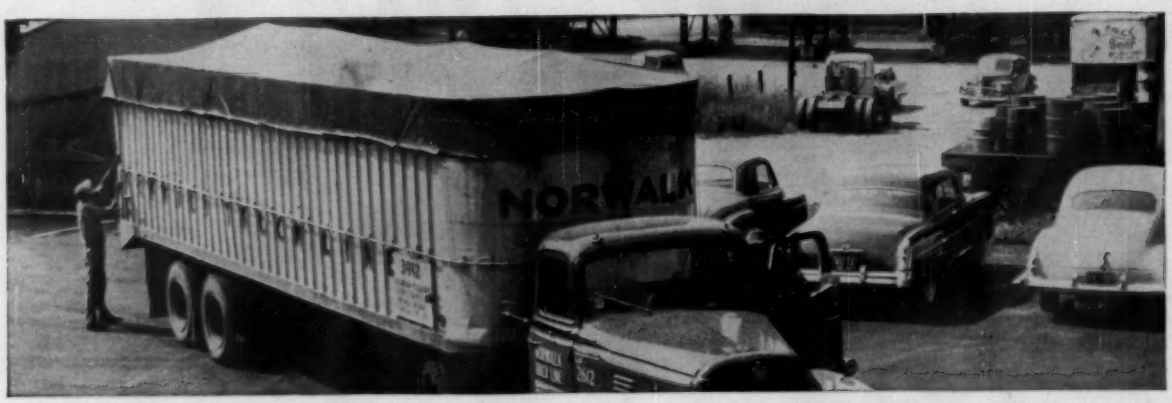
News about

B.F.Goodrich Chemical *raw materials*

for pools . . . or tarps . . . Geon-based coatings



improve nylon performance

REMARKABLE things can be done to fabrics with Geon polyvinyl materials. On nylon, for example, thin, easily-applied coatings based on Geon paste resin provide:

- **watertightness**
- **strength to resist abrasion, wear and tear**
- **resistance to grease, oil and mildew**
- **lasting pliability despite temperature and humidity changes**
- **handling ease**
- **translucency**
- **brilliant or pastel decorator colors that are sunfast**

Geon paste resins and latices may open up entirely new markets for your textile products. For more information write Dept. DV-2, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich GEON polyvinyl materials • HYCAR American rubber and latex • GOOD-RITE chemicals and plasticizers • HARMON colors

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LOST . . . one day's production

while this roll was being changed

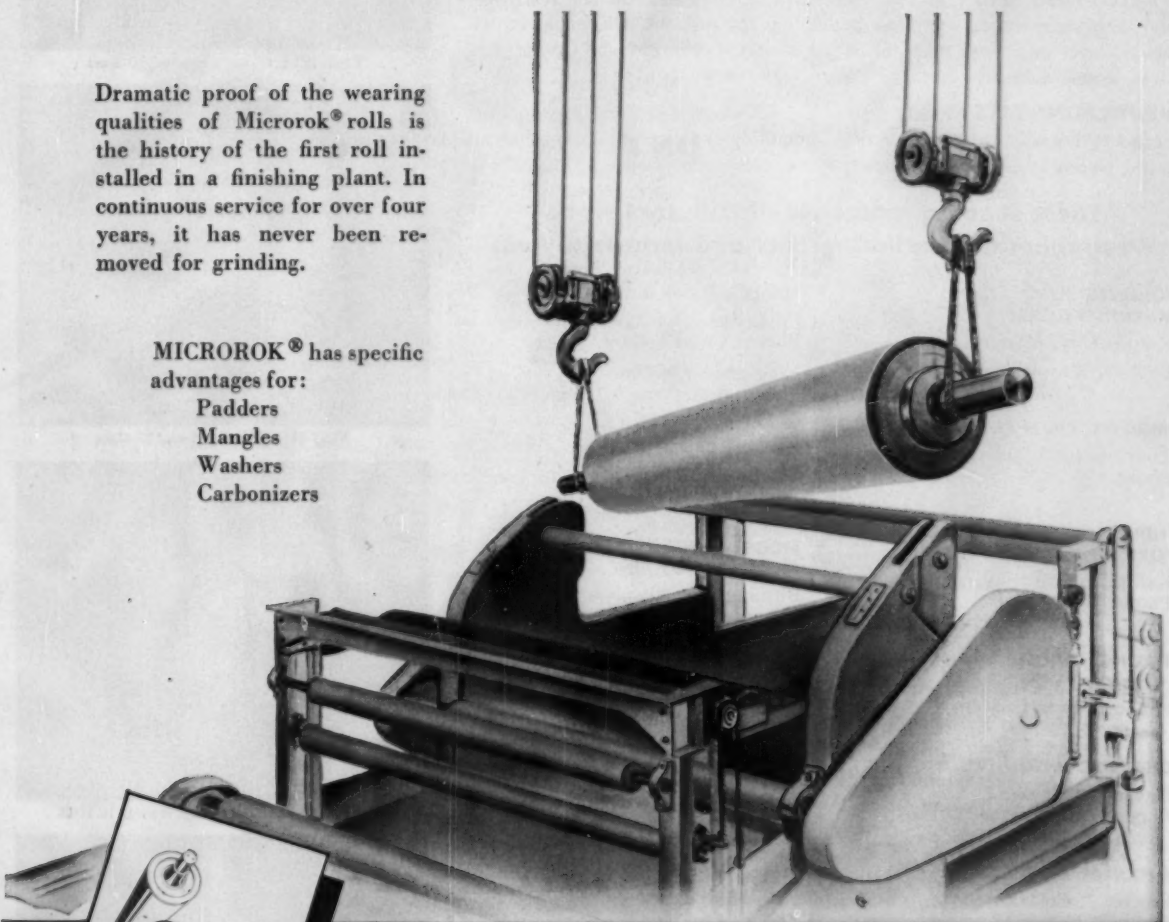
Although the actual grinding of bottom squeeze rolls is not in itself too expensive, the down-time required for the long and difficult job of removing these heavy, hard-to-get-at rolls can result in a serious loss of production.

Alert textile finishers, aware of this problem, are turning more and more to wear-resistant MICROROK® covered rolls by Stowe-Woodward, Inc. For complete information on MICROROK® rolls and their many advantages, contact your Stowe-Woodward Sales Engineer or write for Bulletin 504.

Dramatic proof of the wearing qualities of Microrok® rolls is the history of the first roll installed in a finishing plant. In continuous service for over four years, it has never been removed for grinding.

MICROROK® has specific advantages for:

- Padders
- Mangles
- Washers
- Carbonizers



S-W INC.

STOWE-WOODWARD, Inc.

Craftsmen in rubber rolls

NEENAH, WISCONSIN • NEWTON 64, MASS. • GRIFFIN, GEORGIA

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Readily Available Westinghouse Fans
Meet your Fume and Dust Removal Requirements

Whatever your air handling problem . . . smoke, fumes, vapor, dust, wood shavings, granular material or ventilating . . . these Westinghouse fans are designed to handle or remove them . . . efficiently and economically.

INDUSTRIAL FANS (Steel Casing) . . . high efficiency for general Air Handling; fume and dust removal; 11 sizes, each with 3 types of wheel for specific applications. Wheel diameters 19″ to 64″; inlet diameters 11″ to 37″.

INDUSTRIAL FANS (Cast Iron Casing) . . . ruggedly built, corrosion resisting. For low volume fume or dust removal, materials conveying, industrial drying and cooling. In 10 sizes, each with 3 types of wheel for specific applications. Wheel diameters 8″ to 34″; inlet diameters 4½″ to 18″.

VENTILATING SETS (Direct-Connected) . . . compact, efficient, ready-to-run. Especially suited for small ventilating installations. Cleanable radial blade wheel minimizes problem of handling airborne dirt and grease. Six sizes. Wheel diameters 6″ to 15″; inlet diameters 6″ to 14″.

VENTILATING SETS (V-belt driven) . . . self-contained. Install indoors or outdoors in a wide variety of heating, ventilating or air conditioning applications. Twelve sizes. Wheel diameters 9″ to 30″; inlet diameters 10″ to 32⅞″.

These leading industrial distributors stock Westinghouse Ventilating Sets and Industrial Fans

FORSLUND PUMP AND MACHINERY CORP.
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MILLS & LUPTON SUPPLY CO.
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INDUSTRIAL SUPPLY DIV. OF FOREST PRODUCTS CO.
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STRONG, CARLISLE & HAMMOND CO.
Cleveland 13, Ohio
Phone: Tower 1-8800

GIERKE-ROBINSON CO.
Davenport, Iowa
Phone: Davenport 2-1781

McCOMBS SUPPLY CO.
Denver 2, Colorado
Phone: CH 4-6623

SOMERS, FITLER & TODD CO.
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Phone: Court 1-4860

Youngstown 9, Ohio
Phone: Sweetbriar 9-1556

HAHNEL BROS. CO.
Lewiston, Maine
Phone: Lewiston 4-6477

MOORE-HANDLEY HARDWARE CO., INC.
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Phone: Alpine 2-4121

Nashville, Tennessee
Phone: Amherst 9-5631

Mobile, Alabama
Phone: Hemlock 3-7411

CAREY MACHINERY & SUPPLY CO.
Baltimore 13, Maryland
Phone: Broadway 6-1600

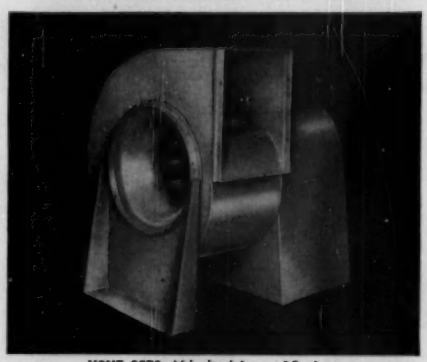
MILL & INDUSTRIAL SUPPLY
Louisville, Kentucky
Phone: Clay 3643

If there isn't one near you, call your Sturtevant Sales Engineer, or write Westinghouse Electric Corporation, Sturtevant Division, Hyde Park, Boston 36, Mass.

WESTINGHOUSE AIR HANDLING

J-80619
YOU CAN BE SURE...IF IT'S Westinghouse

VENT SETS: Direct-connected, 6 sizes


VENT SETS: V-belt driven, 12 sizes

INDUSTRIAL FANS: Cast iron casing, 10 sizes

INDUSTRIAL FANS: High-efficiency steel casing, 11 sizes

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Whitin-Schweiter FILL-MASTER* Filling Winder

The latest addition to Whitin's winder line, the Whitin-Schweiter FILL-MASTER Automatic Filling Bobbin Winder, is a highly versatile machine — a fully automatic, high speed, filling winder with many attractive and unusual features. Among these, a new exhaust device will be very advantageous to all mills encountering dust, lint, and fly in the rewinding process. Each supply package and tension device is housed in a transparent enclosure from which fly, etc., is removed to a dust collector.

ADDITIONAL FEATURES

- Speeds up to 10,000 R.P.M.
- Tail-less Bobbin
- Scissor and Tail Cutter eliminated
- Spindle speed adjustable over wide range for every spindle position
- Automatic empty bobbin loader or new manual or loaded multicell magazine
- New variable layer locking traverse prevents sloughing
- Quick positive adjustment for wound bobbin diameter
- Will handle bobbins up to 10⅛"

* Trade Mark

Whitin
MACHINE WORKS
Whitinsville • Massachusetts

CHARLOTTE, N. C. • GREENSBORO, N. C. • ATLANTA, GA. • SPARTANBURG, S. C. • DEXTER, ME.

Manufactured by **WHITIN** *for sale in U. S. A. and Canada*

Manufactured by **SCHWEITER, LTD., Horgen (Zurich), Switzerland,** *for sale in other countries*

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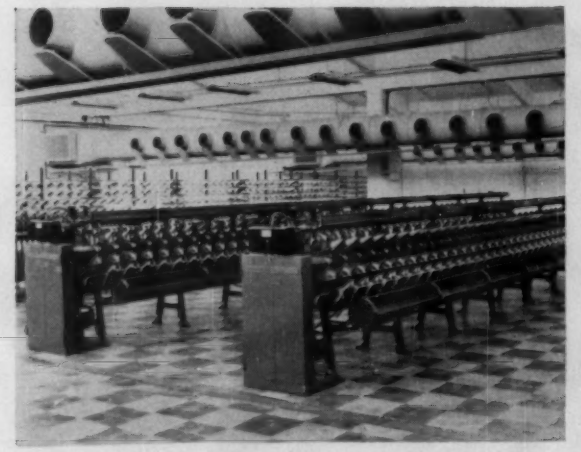
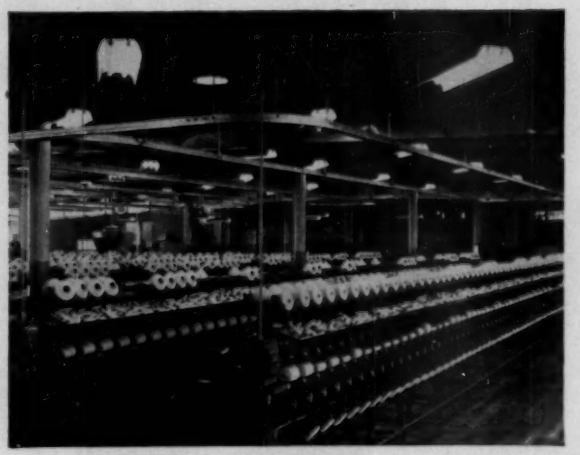
Leesona ROTO-CONER®
—the winding way around the world

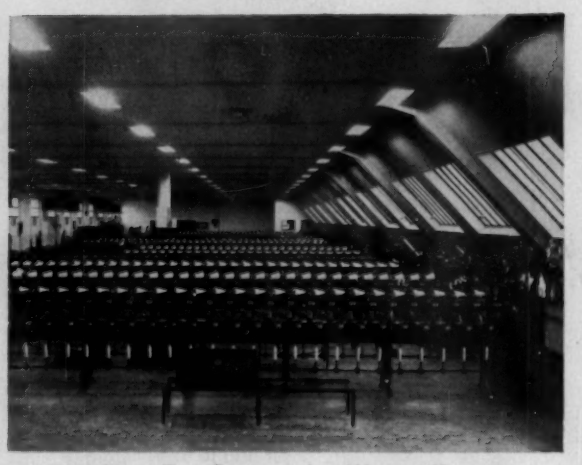


URUGUAY — Roto-Coners set up to wind onto paper cones. Machines are equipped with round bobbin boxes.



U. S. A. — Roto-Coners winding parallel tubes on one side, cones on the other.

GREAT BRITAIN — Roto-Coners winding open-wind knitting cones.



FRANCE — Roto-Coners coning 100s — 120s cotton yarn.

Every textile manufacturing country in the world uses Leesona Roto-Coners in quantity.

These quiet, trouble-free drum winders produce every type of open-wind package. They wind onto paper tubes and cones for shipment or knitting . . . onto cork-covered, wood cones for warper creels . . . onto perforated tubes and springs for dyeing . . . onto wood tubes and cones for twisting.

Around the world they wind cottons . . . spun synthetic staples . . . wools . . . worsteds . . . linens . . . blends.

The exclusive *Rotary Traverse* on these machines eliminates all moving parts connected with reciprocating guides — permits high speed, reduces maintenance, and assures uniform packages and top quality yarn.

For facts and figures on why these versatile, dependable machines are popular around the world, write for the illustrated Leesona Roto-Coner booklet.

23.6.14

UNIVERSAL WINDING COMPANY

P. O. BOX 1605, PROVIDENCE 1, R. I.

Sales Offices: Boston • Philadelphia • Utica • Charlotte • Atlanta • Los Angeles
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Agents in every principal textile center throughout the world.

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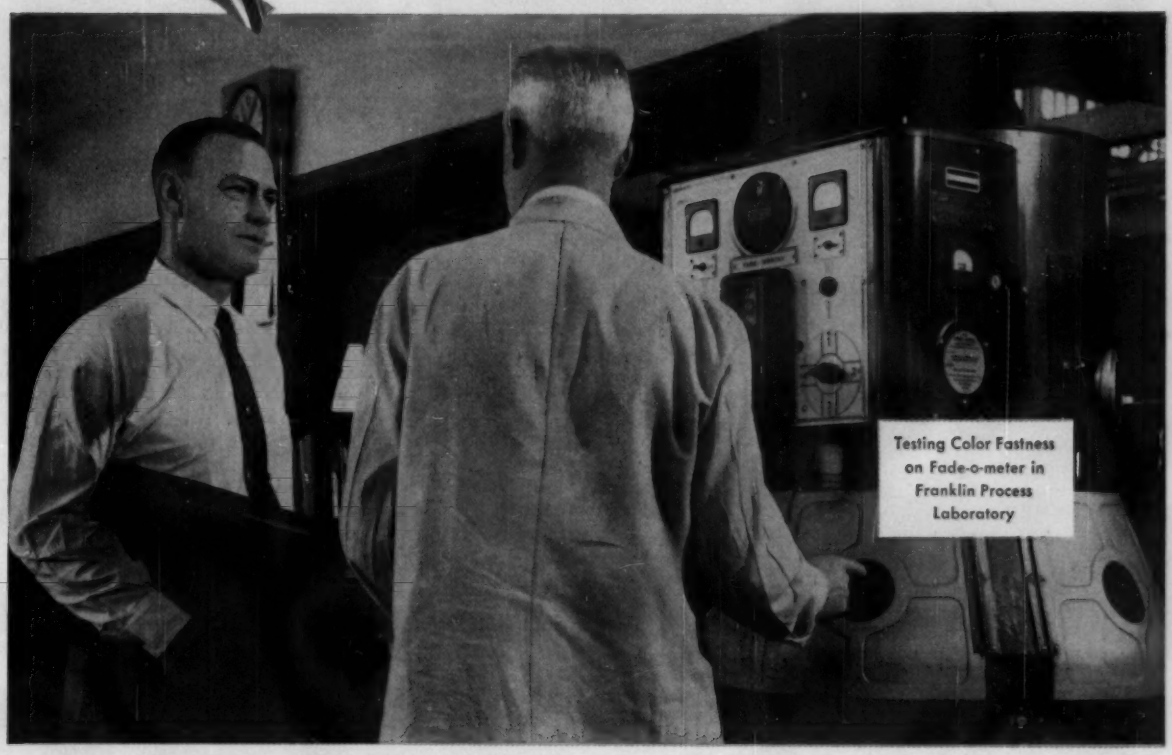
the man of many talents
your ***FRANKLIN PROCESS*** *representative*



Testing Color Fastness on Fade-o-meter in Franklin Process Laboratory

Want the Best Color for the Purpose?

If so, consult with your Franklin Process representative — from any one of our 5 plants or from our New York office. This representative is "a man of many talents" because he is specially trained not only to supply you with quality colored yarns, but also to advise you on:

1. **The best type of dye for the purpose**
2. **The best type of yarn for the purpose**
3. **Fashion trends in colors**
4. **The best method of rewinding from Franklin Packages**
5. **The best yarn putup for the purpose**
6. **The best yarn conditioning for the purpose**
7. **Proper finishing procedures for specific colors**
8. **The proper way to handle dye lots in the mill**

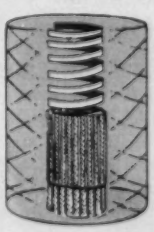
Frequently he can give you such information on the spot. But if not, he can call on the most completely equipped and best staffed laboratory in the business for prompt, dependable answers.

When you need colored yarns (cotton, worsted, or spun synthetics), let "the man of many talents" supply them; let him help you to get maximum value and efficiency with them. It costs you no more.

Franklin Process

Yarn Merchants and Largest Package Dyers in the World — Dyeing Exclusively on the Franklin Spring

Providence • Philadelphia • Greenville • Chattanooga
Fingerville, S. C.
New York Representatives — 40 Worth Street



X-ray view of Franklin Package — the "secret" of uniform shades. Don't say "package dyed". Say "Franklin Process Dyed".

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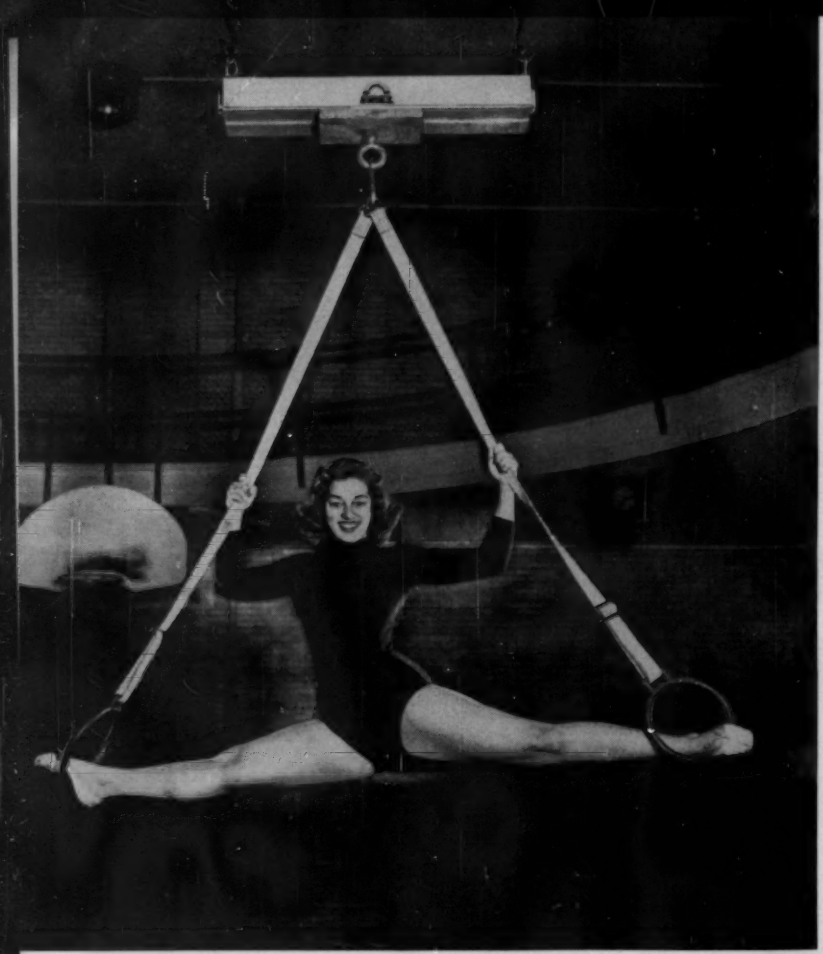


THE DARING YOUNG GAL ON THE ERIEZ TRAPEZE! Though she swings through the air with the greatest of ease, this pretty aerialist has nothing to worry about. Her rigging is held securely by an Alnico V magnet, hung from the ceiling of the gym. This idea of herculean magnetic power has found widespread acceptance in the textile industry, where permanent-powered magnetic separators are used in processing lines to remove tramp iron which could cause fires, machinery damage and production losses in cotton, woolen, rayon and waste mills. *All Eriez Magnets are non-electric, self-contained. They operate without any wires or attachments. Their magnetic power lasts a lifetime. The first cost is the only cost.*

MAGNETIC IDEAS FROM ERIEZ

Eriez' free booklet "Magnetic Ideas" can help you. Send for it without obligation. ERIEZ MANUFACTURING COMPANY, 101Q Magnet Drive, Erie, Pa. OR, on your specific request Eriez factory-trained field men backed by Eriez' laboratory and engineering know-how, will be happy to study your particular problem, make a plant survey and offer helpful "Magnetic Ideas".

THE WOEFUL ROLE OF PICKER CALENDER ROLLS. When's the last time you checked your calender rolls? Did they look like those above . . . damaged by pieces of stray metal that left lasting impressions, and also damaged lickerin and card clothing? Chances are, your own equipment has also suffered because of spikes from aprons, ring travelers, nails, screws, bottle tops, etc. But now you can prevent machinery damage, reduce downtime, and eliminate poor card performance with an Eriez HI-POWR Permanent Non-electric Magnet. Why not invite an Eriez representative to look at your equipment? He'll be glad to survey your plant and recommend one of the many Eriez HI-POWR Magnets designed specifically for the textile industry.

ERIEZ HI-POWR MAGNETIC SEPARATORS

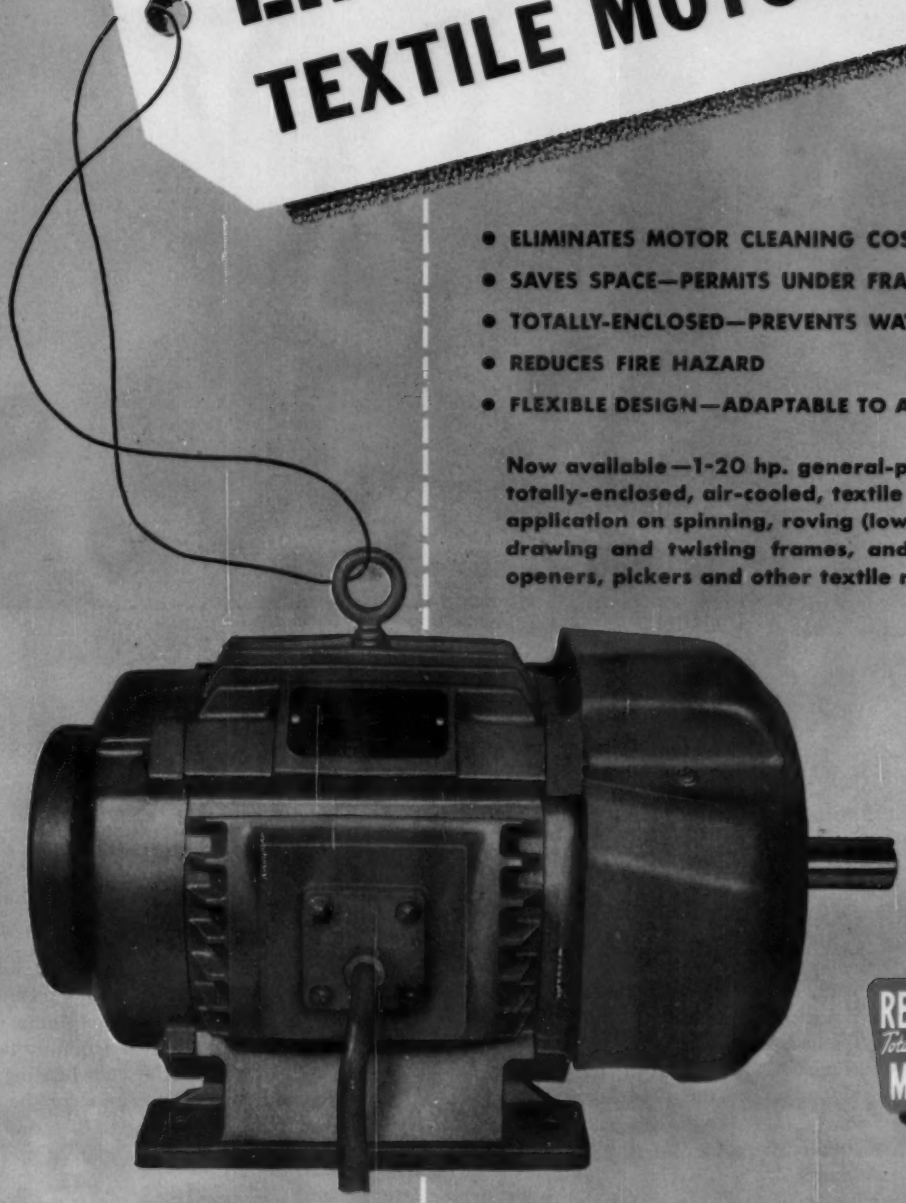
PICKERS AND PROCESSING EQUIPMENT POLICED BY HI-POWR PLATE MAGNETS! No danger of stray metal damaging the pickers, card and special processing equipment of the Chicopee Manufacturing Corporation, Ark., producer of more than 250 types of non-woven fabrics. Three Eriez HI-POWR Plate Magnets, each installed just above a spiked apron, are removing approximately one pound a month of wire, nails, bottle caps broken apron spikes and other tramp iron from the raw material which includes absorbent cotton, rayon, nylon and card returns. According to the Chicopee people, the Eriez Magnets have saved approximately $5,000 yearly in machinery damage and loss of production caused by downtime.

MILL TESTED AND PROVED

THE FIRST LINT-PROOF TEXTILE MOTOR

- ELIMINATES MOTOR CLEANING COSTS
- SAVES SPACE—PERMITS UNDER FRAME MOUNTING
- TOTALLY-ENCLOSED—PREVENTS WATER DAMAGE
- REDUCES FIRE HAZARD
- FLEXIBLE DESIGN—ADAPTABLE TO ALL MACHINES

Now available—1-20 hp. general-purpose, totally-enclosed, air-cooled, textile motor for application on spinning, roving (low torque), drawing and twisting frames, and on cards, openers, pickers and other textile machines. B-5284



RELIANCE Totally-Protected MOTORS

RELIANCE ELECTRIC AND ENGINEERING CO.

Dept. No. 213A Cleveland 10, Ohio • Offices in Principal Cities

Canadian Division: Welland, Ontario

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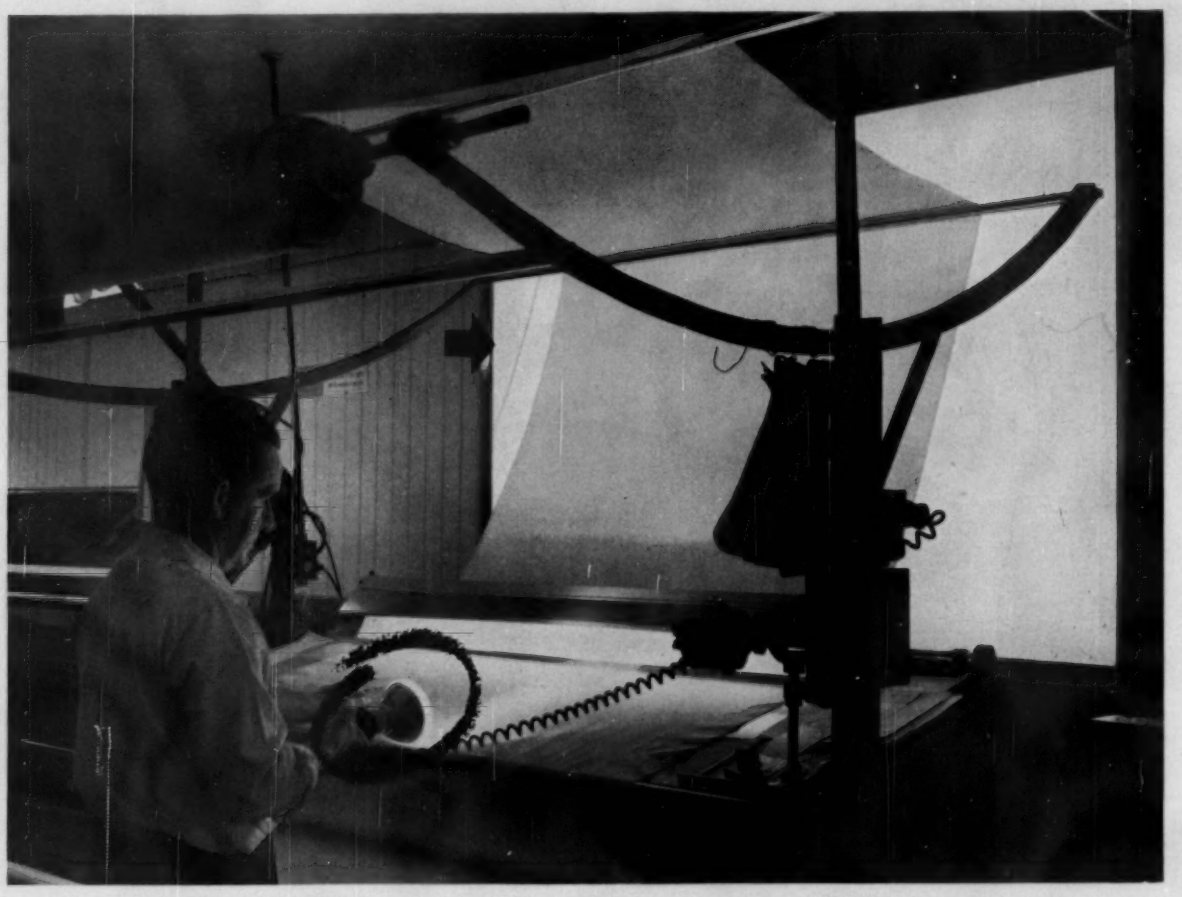
They proved it in Klopman Mills, Inc.—Asheboro, N. C.



FINAL INSPECTION—Portable directional General Electric PAR lamp insures detection of imperfections in finished cloth. A luminous panel in back of the fabric, lighted by nine G-E 40-watt fluorescents, bares even the smallest flaw.

How General Electric lamps help detect troubles *before they get costly!*

AT KLOPMAN MILLS, INC. Asheboro, N. C., where delicate fabrics are created for women's and children's wearing apparel, a vital step in production is catching defects before they get costly. To help improve their inspection techniques, Klopman Mills took a close look at the lighting throughout the plant. Today, by the time fabrics reach the luminous panels of final inspection, shown above, they've spent much of their life under the revealing glow of specially selected lamps.

GENERAL ELECTRIC four-foot fluorescent lamps provide general inspection lighting—and G-E PAR-38 lamps provide grazing light so inspectors can quickly detect broken fibers. The PAR-38's are also used in sizing, grading and final inspection. These are critical seeing jobs where small variations in thickness or twist of yarn, or a broken thread, can ruin an entire run of fabric. The lighting techniques used at Klopman Mills, Inc. assure their customers that quality control is the best guarantee of a quality fabric. It may pay you to take a closer look at your lighting, too. Call your local General Electric distributor for the right answers to your lighting questions. General Electric Large Lamp Dept. TW-3, Nela Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL ELECTRIC

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*REG. U. S. PAT. OFF.

Busiest line in washable reds!

AMANIL* NAPHTHOLS

and Fast Color Salts and Bases

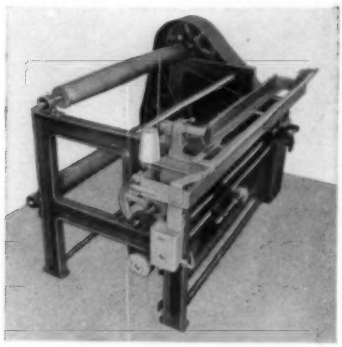
Radiant, wash-fast reds that have become the standard of comparison in successful Naphthol dyeing. Combinations assuring extensive shade variety throughout the red range and into gold. Perfect for red cotton rugs, toweling, shirtings, sportswear, corduroy. Outstanding for light fastness. For expert help with the Naphthol process, write or call your A. A. P. representative at our nearest branch.

AAP

AMERICAN ANILINE PRODUCTS

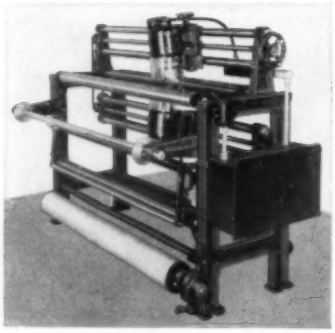
A UNIT OF KOPPERS CO., INC.

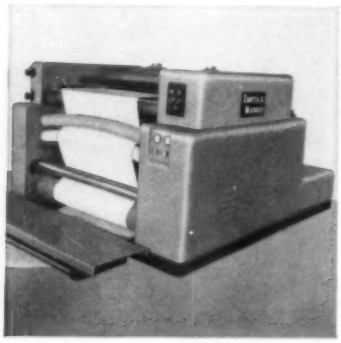
50 Union Square, New York 3, N. Y. Plant: Lock Haven, Pa. **BRANCHES:** Providence, R. I. • Philadelphia, Pa. • Paterson, N. J. • Chicago, Ill. Charlotte, N. C. • Chattanooga, Tenn. • Columbus, Ga. • Los Angeles, Cal. **Dominion Anilines & Chemicals, Ltd.**, Toronto, Canada • Montreal, Canada



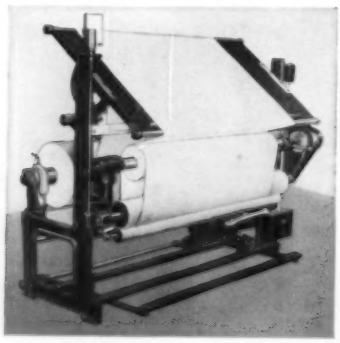
DUPLEX SEWING AND WINDING MACHINE sews loom rolls together for continuous shearing

SELVAGE LOOP CUTTER prepares cloth for shearing





M-125 SHEAR for synthetic and cotton fabrics



S 2A UNISPEED INSPECTOR for synthetic fabrics

Your finished fabric represents your most expensive item . . . so waste here is more costly—both for labor and materials—than in any other operation in your mill. Thus, your answer is better cloth finishing . . . overall cost is small, but improvement in the appearance and the cleanliness of your cloth is great. If you agree . . our engineers are ready and qualified to help you.

CURTIS & MARBLE MACHINE CO.

Serving the Textile Industry for more than 125 years

72 CAMBRIDGE STREET • WORCESTER 3 • MASSACHUSETTS

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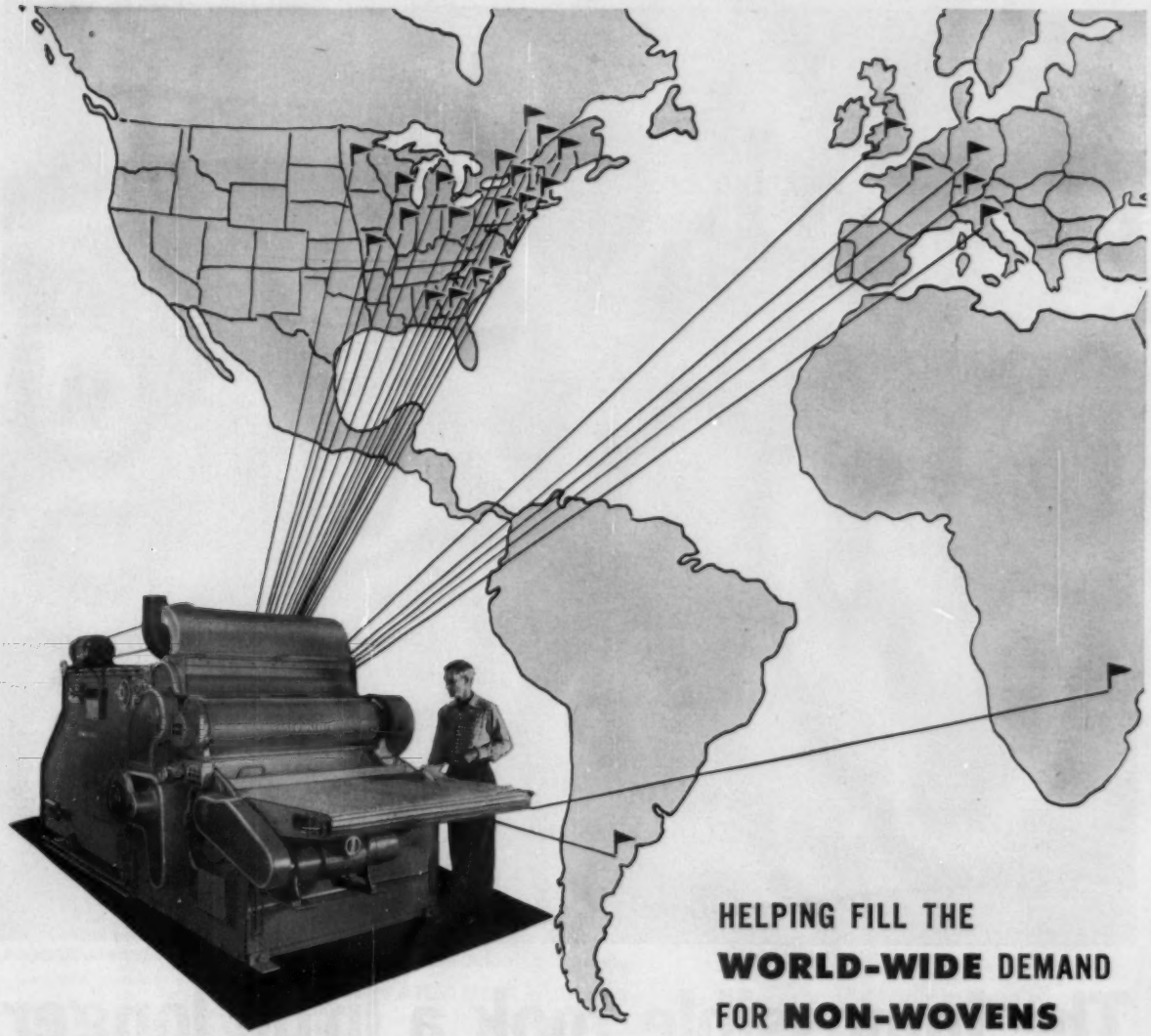

HELPING FILL THE
WORLD-WIDE DEMAND
FOR **NON-WOVENS**

NOW

RANDO-FEEDERS® and RANDO-WEBBERS® are producing RANDO-WEBS® in 8 foreign Countries, 15 States

In just 5 short years these unusual machines have earned world-wide recognition and the acceptance of the textile industry.

WRITE today for details on the *new* 40", 60" and 84" machines. Ask for Bulletin 104.

TEXTILE DIVISION
CURLATOR®
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EXPORT REPRESENTATIVE: Lendt & Company, 535 Fifth Ave., New York 17, N.Y.
SOUTHERN REPRESENTATIVE: Parrott & Ballentine
510 South Carolina, National Bank Bldg., Greenville, S. C.

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Paying out hose at 50 mph, thanks to Fortisan-36 rayon

The Impossible took a little longer

It only existed in specifications.

The U. S. Army wanted a fuel hose with 4" inside diameter and burst pressure of 500 PSI; so flexible and light it could be payed out of a truck or helicopter at 50 miles an hour.

It only existed on paper. Now it is fact—with Fortisan-36. Using a Fortisan-36 fabric woven by Bibb Manufacturing Co., U. S. Rubber—and the U. S. Army—solved a seemingly impossible problem at low cost. Fortisan-36 has tremendous tensile strength (twice that of viscose rayon, for example) at light weight. Practically speaking, it doesn't stretch under pressure. Nor do temperature and moisture changes affects its dimensions. It is a remarkable fiber and it makes remarkable hoses. V-belts, conveyor belts, tarpaulins, too.

Fortisan-36 is available in many deniers and packages, depending upon the need of the weaver. Full details are in Booklet TD 20A and End Use Bulletin #10. Remember—Celanese not only delivers its fibers, but its technical skills as well. Let us put Fortisan-36 on the job together. Celanese Corporation of America, Industrial Sales Department, Textile Division, Charlotte, North Carolina.

Celanese®

District Offices:

180 Madison Ave., New York 16, N. Y.

22 W. Madison St., Chicago 2, Ill.

Export:

Amcel Co., Inc. and Pan Amcel Co., Inc.

180 Madison Ave., New York 16, N. Y.

In Canada:

Chemcel, Canadian Chemical & Cellulose Co., Ltd.

2035 Guy St., Montreal

Celanese

Fibers for Industry

FORTISAN® RAYON • FORTISAN®-36 RAYON • ARNEL® TRIACETATE • ACETATE • VISCOSE-RAYON

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Spaulding

MATERIALS HANDLING PRODUCTS

for Textile Manufacturers

SPAULDING PRODUCTS ARE:

TOUGH — High resistance to impact and abrasion.

SMOOTH — Can't splinter. Won't snag.

LIGHTWEIGHT — Easy to move about and handle.

RESISTANT to oils and greases. No corrosion.

MADE WITH superior basic materials and advanced fabrication techniques. Spaulding Vulcanized Fibre mill trucks, boxes, barrels, baskets, and roving cans raise efficiency and lower maintenance and replacement costs in all textile materials handling operations.

AVAILABLE in all standard sizes and designs or specially made to your particular requirements.

CONTACT the Spaulding Branch Office nearest you for complete information on the many products Spaulding makes for the Textile industry.

Spaulding Also Makes These Items For The Textile Industry

Headless Package Tubes • *Take-Up Tubes* • *Sizing Tubes*
Lap Rolls • *Pirn Caps* • *Redraw Caps*

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7247 Olive Street Road
ST. LOUIS 17, MO.
1500 Big Bend Blvd.
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SPAULDING FIBRE COMPANY, INC., Dover, New Hampshire-Tonawanda, N.Y.

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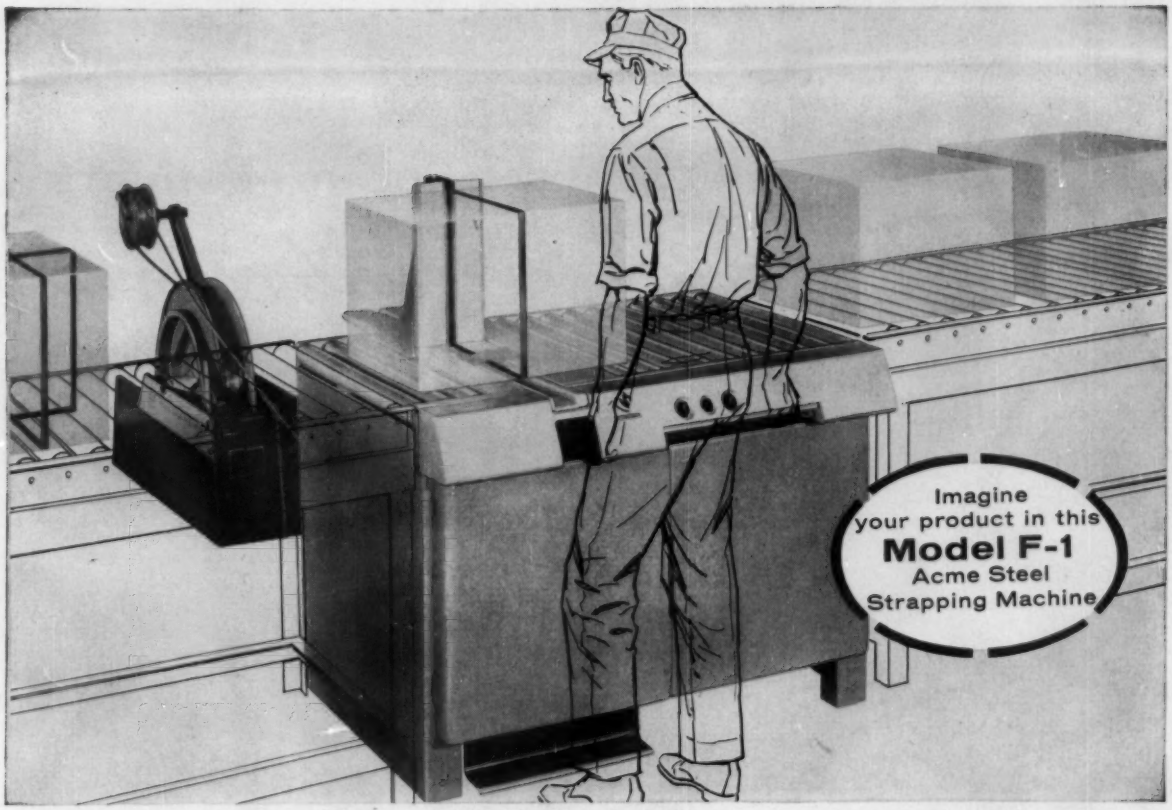
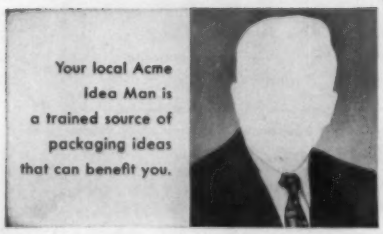


Line up your AIM*. . . others find it pays . . .

Let this idea machine break packaging bottlenecks

YOUR ACME IDEA MAN can prove to you, as he has to others, how the Acme Steel F-1 Strapping Machine breaks high volume packaging bottlenecks. This Idea machine, designed for straight line packaging procedures, speed-applies steel strapping to help you ship your products in safe, secure, tamperproof, economical packages. And its fast, push-button operation lets even intermixed package size variations flow from production line to transportation with no delays for machine adjustments.



It's easy to operate the F-1 machine . . . operators require only nominal instruction and maintain high output levels because of less fatigue. The F-1 is electrically powered and can be made fully automatic. It is controlled with fingertip ease to automatically tension and cut steel strapping with no waste. Ends are permanently joined by two instantly applied spot welds . . . and the package is ready for shipping.

***Line Up Your Acme Idea Man Today.** Whoever he may be, your Acme Idea Man is ready to prove how the F-1 Machine or any of the Acme Steel Idea products can bring you new high standards of packaging speed, efficiency and economy. For his name, write to Dept. TAS-37, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Ltd., 743 Warden Avenue, Toronto 13, Ontario.

ACME STEEL **STEEL STRAPPING**

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FIBER-LOK resin emulsions for textiles

FIBER-LOK emulsions are new vinyls formulated especially for textile applications—from sizing and finishing to nonwoven fabrics.

FIBER-LOK emulsions find use with all types of fibers and fabrics including blends of natural and synthetic. They impart a soft full hand or a crisp stiff finish. They increase tensile strength, abrasion resistance and wash fastness. Some withstand sterilization without discoloring.

FIBER-LOK emulsions are simple to use. Compatible with other sizing and finishing materials. They vary in particle size, emulsifier type and other physical characteristics. Why not let one of National's Resyn Specialists help you decide which can improve your fabrics.

RESYNS® National STARCHES

CHEMICAL PROGRESS WEEK-APRIL 8-12

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In Canada: National Adhesives (Canada) Ltd., Montreal

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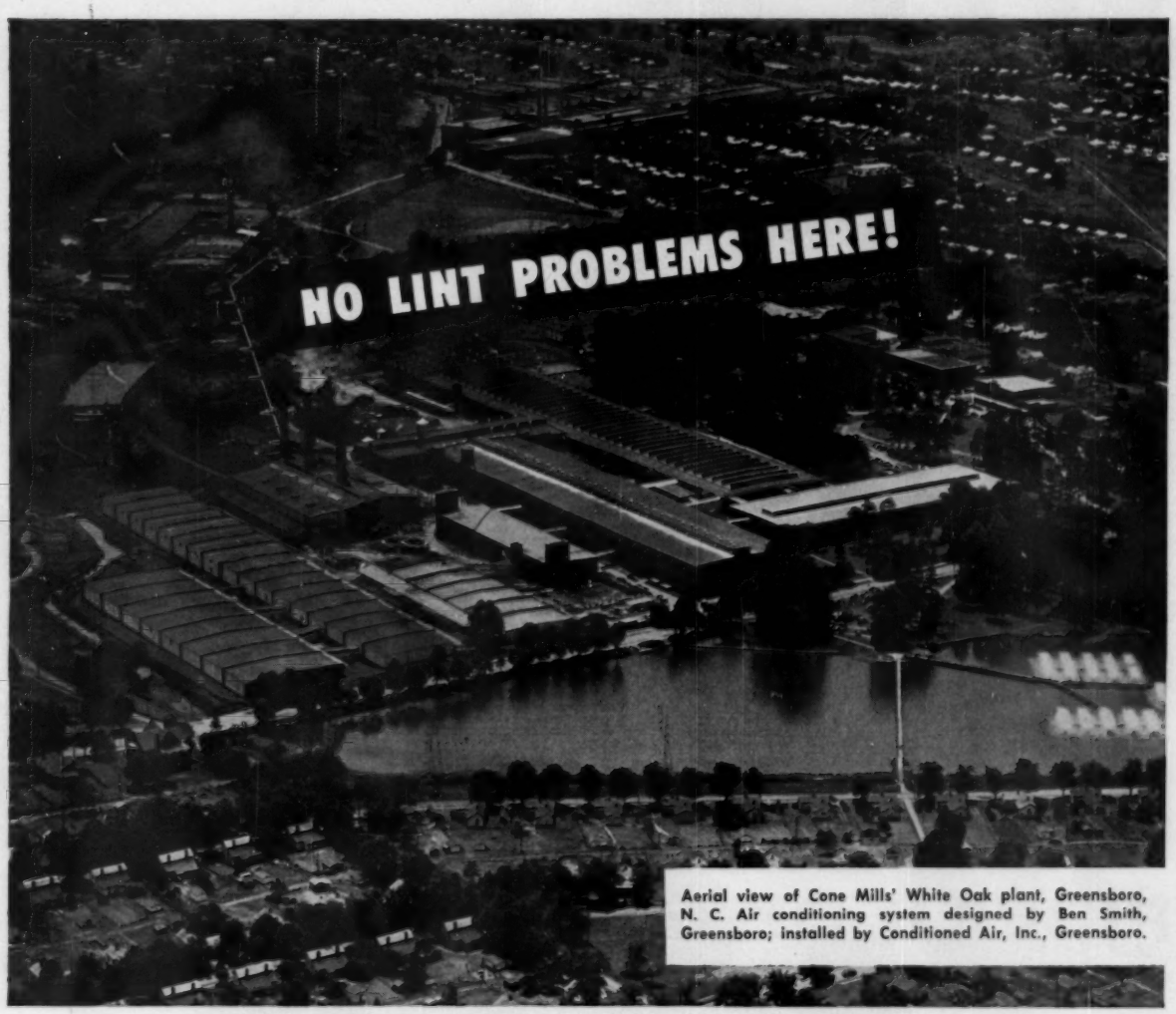


Aerial view of Cone Mills' White Oak plant, Greensboro, N. C. Air conditioning system designed by Ben Smith, Greensboro; installed by Conditioned Air, Inc., Greensboro.

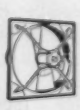
Auto-AIRMAT filters supply 1,050,000 cfm of lint-free air to Cone Mills' White Oak plant

Lint can't get a "toe-hold" at Cone Mills' modern White Oak plant at Greensboro, North Carolina. AAF lint filters—automatic Auto-AIRMATS—stand guard on 15 air conditioning systems, supply more than a *million cfm* of clean, lint-free air.

Auto-AIRMAT is the only filter designed to remove lint fibres from the air and clean itself at the same time! Airmat filtering material, unwinding from roll at top of unit, moves automatically down the face of the filter, collecting lint all the way—re-winds into easily-disposable roll at bottom.

If you've got a lint problem, investigate the lint filter—AAF's Auto-AIRMAT. Call your local American Air Filter representative, or write direct for Bulletin 234.

Herman Nelson Unit Blowers



Herman Nelson Propeller Fans

AAF Herman Nelson

American Air Filter
COMPANY, INC.

304 Central Avenue, Louisville 8, Kentucky
American Air Filter of Canada, Ltd., Montreal, P. Q.

— BETTER AIR IS OUR BUSINESS —

Illinois Heating Specialties

Air Filters and Precipitators

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Allied

makes...

sells...

services...

UREA

Allied is your assurance of year-in, year-out supply

How long—and how strong—is your supply line for urea? How fast can you get technical service when you need it? Check your answer to these questions against these facts: Allied's Nitrogen Division is the country's largest producer of urea. Allied's urea is made at not one but *two* strategically located plants—South Point, Ohio and Omaha, Nebraska. Carload and truck lots are shipped from either plant. Warehouse stocks for LCL shipments are maintained in six important consuming areas. Allied's experienced technical staff is as near as the phone on your desk.

Dept. U-3-30-1

Allied Chemical — Nitrogen Division

40 Rector Street, New York 6, N. Y.

Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate—85 • Anhydrous Ammonia • Ammonia Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Solutions • Nitrogen Tetroxide • Fertilizers & Feed Supplements

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When the AVISCO® says washable

your rayon apparel sells and stays sold!

Many people don't realize what tremendous advances rayon fibers and rayon finishes have made in the past year or two.

The Avisco Integrity Program has been set up to consolidate these gains, explain them and build continuing public confidence in them.

Washable rayon apparel, for instance, offers a tremendous new volume potential for the retailer. For now the true colors, the lasting luster and the luxury look of fine rayon can be sold as "washable" without a qualm. Even white rayon business shirts offer important sales advantages.

You can have confidence in apparel bearing the "washable" Avisco Integrity Tag because every qualified fabric has passed these eight tests:

1. Colorfast to machine laundering in HOT water (160° F)
2. Colorfast to sunlight (test: 40 Fade-Ometer hours)
3. Colorfast to crocking
4. Shrinkage less than 2% (test: CCC-T-191a, cotton method)
5. Resistance to atmospheric fumes (such as smog)
6. Resistance to retained chlorine (measured by loss in fabric tensile strength)
7. Breaking strength (A.S.A. test L-22)
8. Bursting strength (A.S.A. test L-22)

For further details, call LA 4-7200 or write
AMERICAN VISCOSE CORPORATION, 350 Fifth Avenue, New York 1, N. Y.

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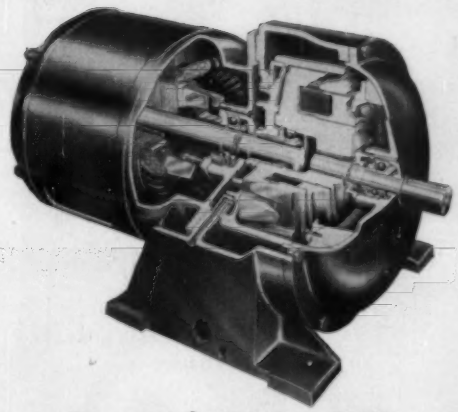
No Commutators, No Rings, No Brushes, No Rotating Coils—in the NEW

EATON

DYNAMATIC®

Adjustable Speed Drives



Dynaspede® Stationary Field Coupling, with Integral Motor

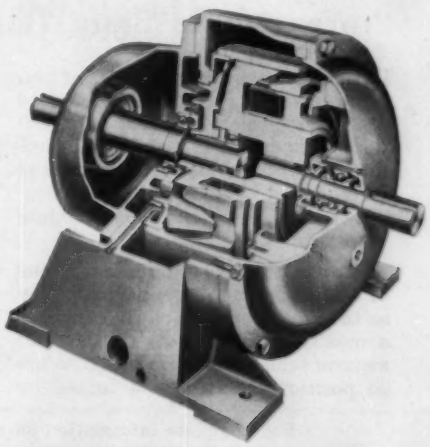
Dynamatic stationary field couplings are the simplest drives so far devised to provide infinitely adjustable speed from an alternating current source. The absence of rotating coils, brushes, slip rings, and commutators in this design holds wear and maintenance to an absolute minimum. Dynamatic electronic or magnetic amplifier controls, in combination with these drives, provide wide latitude in operating functions.

Check these Outstanding Advantages:

Accurate speed control • Wide speed range • Low power losses • Simple construction • Rapid response • Remote control • Quiet, efficient operation • Low maintenance costs

Ajusto-Spede® Drives: Air cooled, stationary field eddy-current couplings mounted integrally with D-flange open drip proof squirrel cage motors are available in capacities from 1 to 75 HP. Units of the same design and capacities are also available without motors.

Dynaspede® Drives: Liquid cooled, stationary field couplings mounted integrally with D-flange squirrel cage motors are available in capacities from 3 to 75 HP. Motor types available are drip proof, splash proof, totally enclosed fan cooled, and explosion proof. The coupling is totally enclosed. Separately mounted couplings are also available in capacities from 3 to 2500 HP and larger.



Stationary Field Coupling for use with Separately Mounted Motor

Send for Detailed Information on these New Stationary Field Couplings and Drives

EATON DYNAMATIC DIVISION
MANUFACTURING COMPANY
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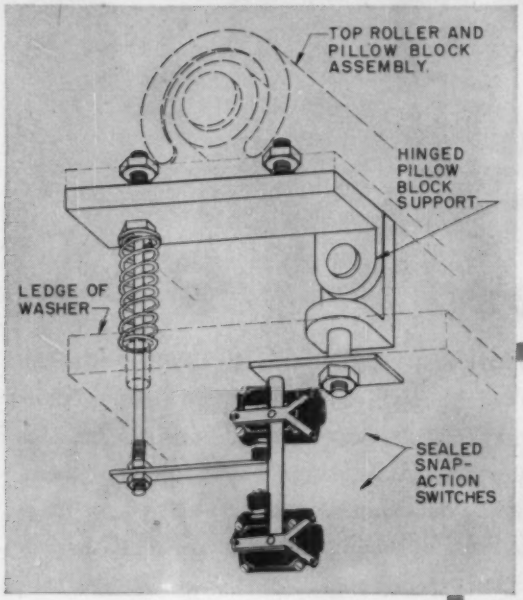
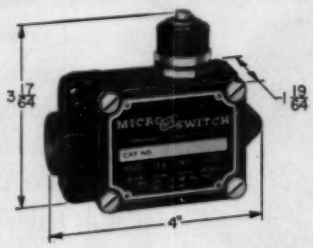
MICRO SWITCH . . . FIRST IN PRECISION SWITCHING



The switches used in this application are "F" series enclosed high capacity switches. An elastomer boot on the plunger prevents entrance of moisture or dirt. A gasket seal is located between the housing and cover plate.



How Textile Manufacturer uses MICRO SWITCH Precision Switches to prevent "thread-outs" and "lap-outs"

Here is an example of the use of two MICRO SWITCH precision switches to control a tension-actuated stop motion. This device is installed on continuous process bleaching and dyeing machinery to prevent time consuming "thread-outs" and roller bending "lap-outs."

A stop motion is mounted on one of the top idler rollers in such a way as to use extremes in cloth tension as a means of actuation. Two MICRO SWITCH sealed precision switches are so positioned as to be actuated by changes in cloth tension.

Release of the cloth tension, such as occurs in a breakout, allows the springs to return to their original position and brings the actuating arm up against the top switch. Actuation of the switch stops the machine quickly through dynamic braking. Excessive cloth tension, such as occurs in a "lap-out," causes full compression of the springs and actuates the bottom switch. This also stops the machine before bending tensions develop.

For complete information on switches for textile equipment, contact the MICRO SWITCH distributor nearest you. Field engineering service is also available at MICRO SWITCH branch offices.

Look under "Switches, Electric," in the Yellow Pages.

Mill operators have found hundreds of other important uses for MICRO SWITCH precision switches

- as trumpet stops on combing heads
- as carriage movement controls
- to prevent needle breakage
- to stop bobbin winding when bobbin fills
- as thread breakage detectors
- to control cloth position as web unrolls
- to position clamps on cloth stretching machine
- as thread run-out detector on loom shuttles
- to automatically eject unfilled quills
- to stop motor when gear box is opened
- to control tension on cloth measuring machine
- as selvedge build-up control
- as fabric thickness detectors
- and many other textile applications

Send for Catalog 83
"Industrial Enclosed Switches"

MICRO SWITCH
A DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR COMPANY
In Canada, Leaside, Toronto 17, Ontario • FREEPORT, ILLINOIS

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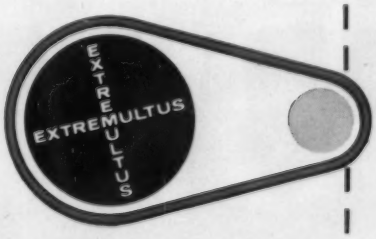
New Extremultus spinning frame belt practically eliminates thread breakage by providing constant spindle speeds and absorbing vibration — does not stretch and outlasts all other belts.

Thread Breakage Needn't Be a Problem!

The spinning installation shown above is typical of the "impossible" belting problems which EXTREMULTUS solves with ease. This new belt, a combination of leather and plastic, is out-performing and replacing existing V-belts, chains and flat belts everywhere! Its elasticity and freedom from elongation, together with the high friction coefficient of the chrome leather surface, permits its use at low tension while maintaining constant speeds. EXTREMULTUS operates at speeds to 10,000 ft. per min., at ratios as high as 20:1, arcs of contact as low as 90°, a range from 1/10 to 6,000 HP! In addition, EXTREMULTUS requires widths a fraction of belts replaced, eliminates take-up because of freedom from stretch, needs no idlers, yet operates on standard pulleys! Write today for full information for the EXTREMULTUS answer to *your* toughest drive problem!



EXTREMULTUS, INC.
405 Lexington Ave., New York 17, N.Y.

Please rush full information on EXTREMULTUS for use on

Name .....

Title .....

Company .....

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City ..... State .....

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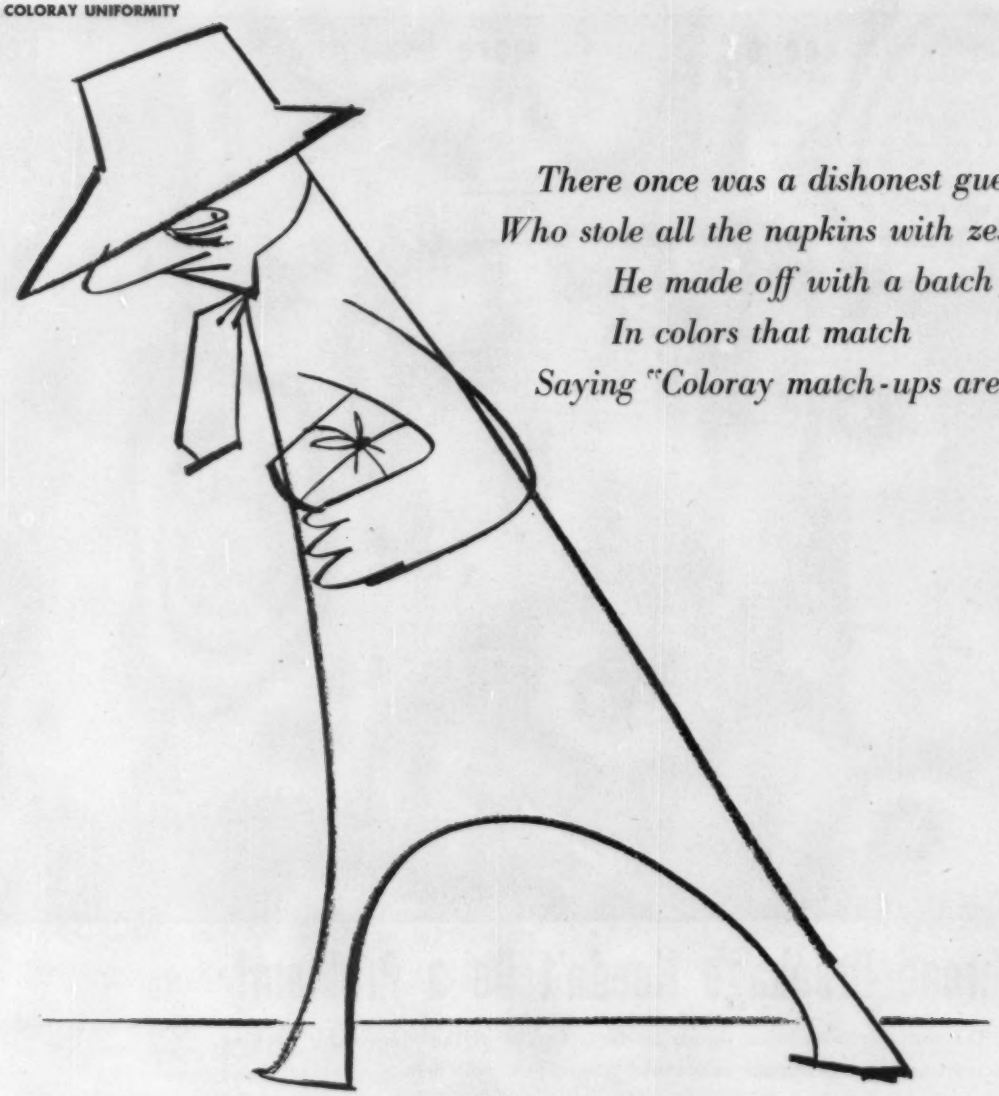
AD ON COLORAY UNIFORMITY



There once was a dishonest guest
Who stole all the napkins with zest
He made off with a batch
In colors that match
*Saying "Coloray match-ups are best!"**

*SERIOUSLY — the great uniformity of Coloray color makes matching up a sure thing. When Coloray is responsible for coloring a fabric, you *can't* have dyeing creases or shaded ends or any variation of color . . . even bolt to bolt! What's the reason? The way Courtaulds' solution-dyed Coloray rayon is made — with pigment evenly distributed through every atom of the fiber. What's the result? A happy state of affairs for mill men (who can fill reorders as reordered). A happy state of affairs for cutters (who can cut more of a hit style and hit the color right on the nose). A happy state of affairs for makers of home furnishings (where matching up of curtains and draperies and slip covers and upholstery is vitally important). Happiness for everybody in soft goods with Coloray rayon . . . the fiber that delivers topnotch colorfastness too!

COURTAULDS'

COLORAY®

Rayon fiber with Captive Color . . . *"can't escape!"*

For further information, write:

COURTAULDS (ALABAMA) INC. • *First name in man-made fibers, first name in solution-dyeing*
600 FIFTH AVE., NEW YORK 20 • Greensboro, N. C. • Le Moyne Plant, Mobile, Ala.

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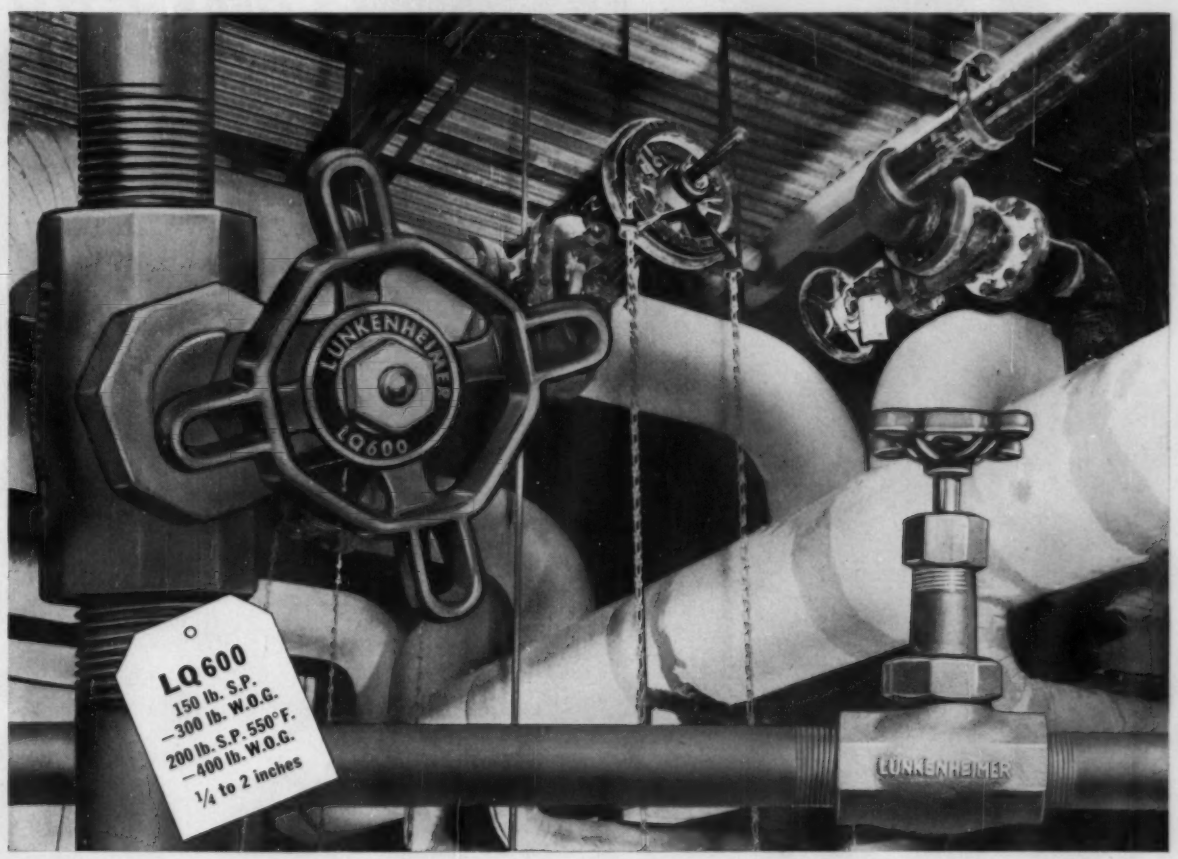
Today, maintenance often costs more than the equipment itself!

You Can't Afford Less than the Best



What's happened to maintenance costs? That's a question you hear time and again in management-maintenance meetings these days. Costs are up sky-high and labor rates are still rising. The minute you touch a wrench to a valve, its cost can more than double! You can't do anything about the labor costs, but you can cut maintenance expense to rock-bottom by installing the one bronze globe valve that's handwheel-and-bonnet above all others . . . the LQ600, by Lunkenheimer. Thousands of these valves have served without maintenance for five years and more—many on the toughest throttling services industry can offer. The secret? Exclusive Brinalloy* seats and discs—harder than 500 Brinell Stainless! Insist on LQ600 Valves to help solve your number-one problem . . . sky-high maintenance expense. The Lunkenheimer Co., Box 360, Cincinnati 14, Ohio.

The cost of a LUNKENHEIMER VALVE
Gets smaller... and smaller... and smaller...
with each passing year of dependable service

**Patented alloy—T. M. Reg.*

L-157-15

LUNKENHEIMER QUALITY

LUNKENHEIMER®
THE ONE *Great* NAME IN VALVES

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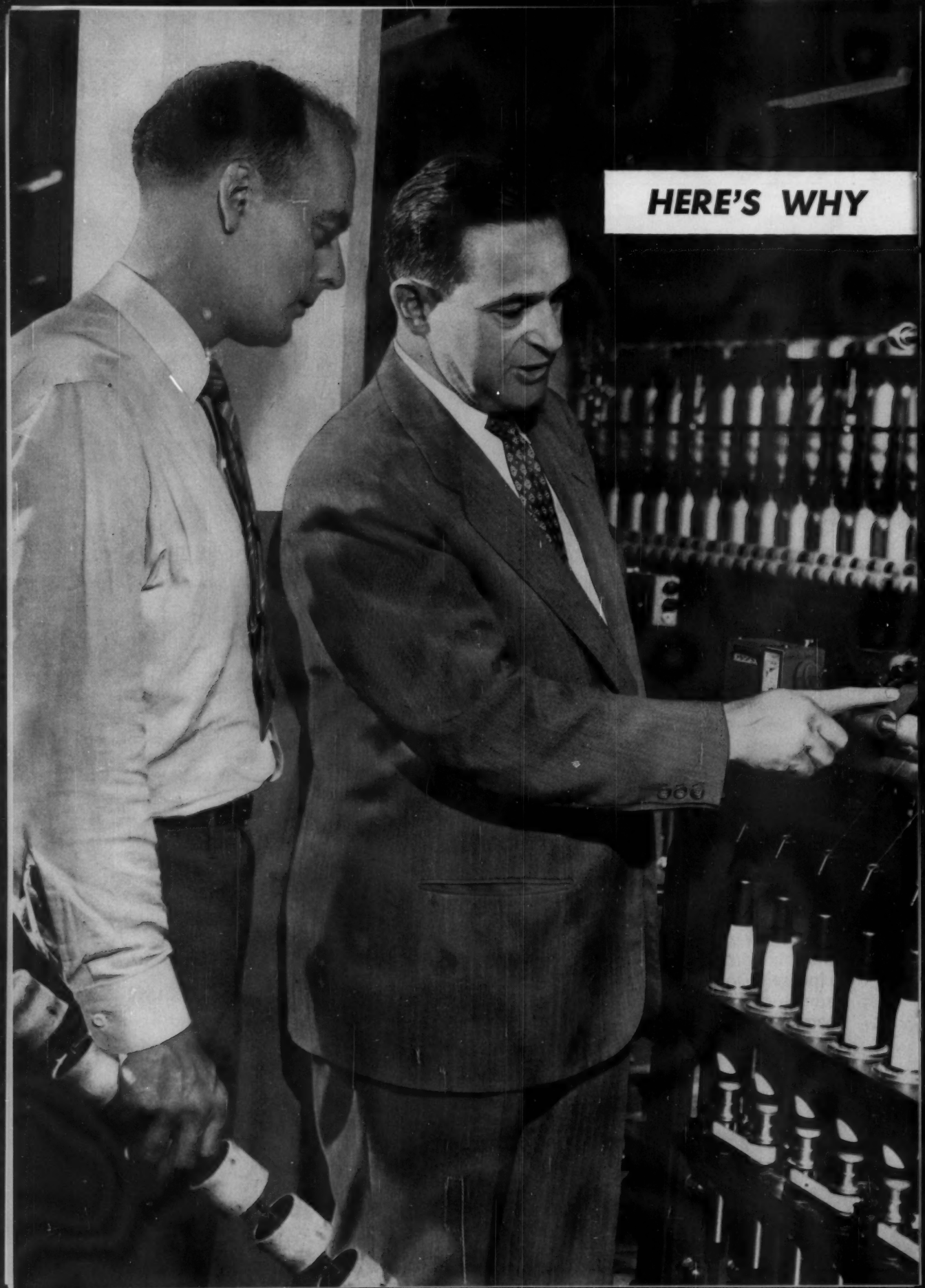

HERE'S WHY

ARMSTRONG J-490 COTS REDUCE LAP-UPS . . . NO MATTER WHAT YOU'RE SPINNING

Whether you're spinning natural fibers, synthetic fibers, or blends, you'll get far fewer lap-ups if you use the roll cover with "built-in" lap resistance—Armstrong J-490 Accotex®.

J-490's resist lapping because they are made of a patented synthetic rubber compound that effectively neutralizes the normal electrical attraction between roll cover and fiber. The compound contains special electrolytes that actually tend to repel broken ends, preventing them from lapping.

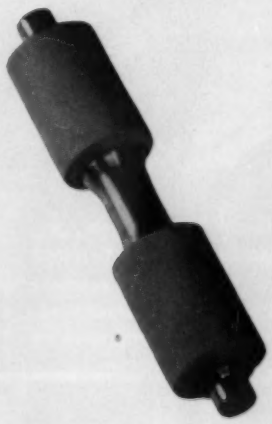
The J-490 compound offers other important advantages, too. Because it contains no rough fillers, its drafting surface is always uniformly smooth. This roll cover won't pull fibers from the stock, neither will it cause excessive ends down.

Armstrong J-490 Cots are durable, too. Their synthetic rubber compound is exceptionally long wearing, and is never affected by oils, dyes, or commonly used textile solvents. In fact, all that's normally needed to keep this cot spinning like new for years is an occasional re-buffing.

You can prove on your own frames how long-wearing J-490 Accotex Cots help prevent lapping and improve yarn quality. Your Armstrong representative will be glad to arrange for a test side. Call him today, or write direct to Armstrong.

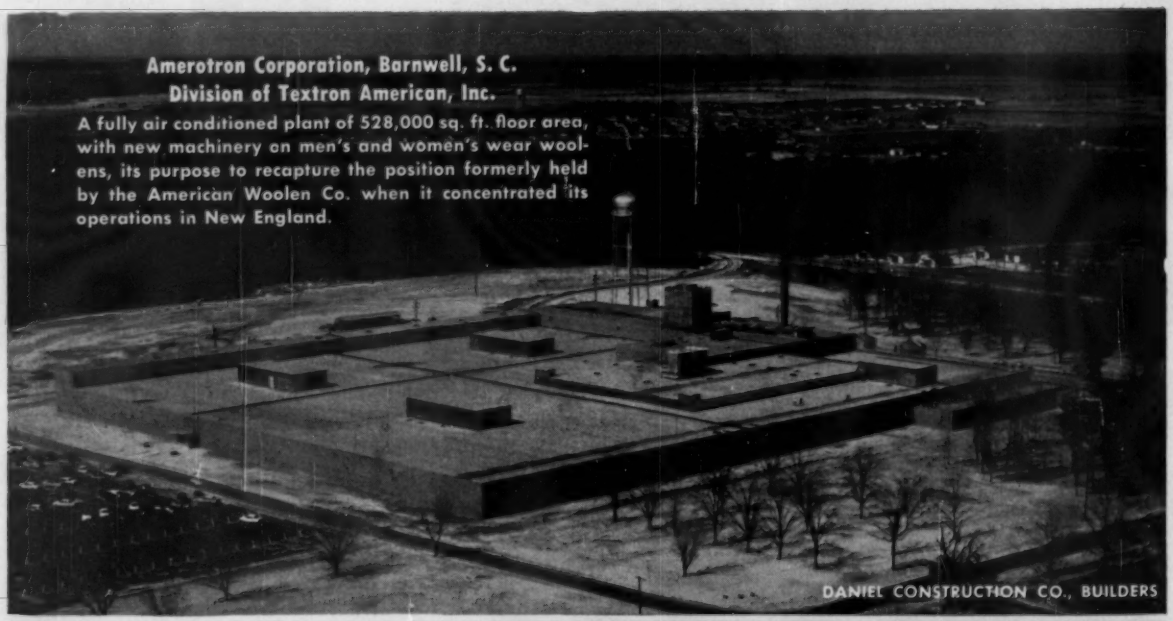
For more information about J-490 Accotex Cots and the many other Armstrong textile products, write for a copy of our new booklet, "Armstrong Textile Products." Address Armstrong Cork Company, Industrial Division, 6503 Dauphin Street, Lancaster, Pa. All Armstrong textile products are available for export.

P. S. Whatever the problem in your spinning room, you'll most likely find a quick solution in one of several materials in the Armstrong Accotex line. For example, there are special compounds designed to give maximum eyebrow resistance. And if you need the improved yarn control offered by a softer material, there are Accotex compounds to meet this need. Where high-static conditions aggravate the lapping problem, there is a group of new anti-static Accotex materials made especially to combat these conditions. Your Armstrong man will be glad to help you choose the right roll cover for best performance in your spinning room.



Armstrong ACCOTEX COTS

. . . used wherever performance counts



Amerotron Corporation, Barnwell, S. C.
Division of Textron American, Inc.

A fully air conditioned plant of 528,000 sq. ft. floor area, with new machinery on men's and women's wear woolens, its purpose to recapture the position formerly held by the American Woolen Co. when it concentrated its operations in New England.

DANIEL CONSTRUCTION CO., BUILDERS

LOCKWOOD GREENE PROJECTS IN . . . . .

WOOLEN and WORSTED

Lockwood Greene has completed over 500 engagements in the woolen and worsted field, and in the entire textile industry projects valued at over three quarter billion dollars.

National Spinning Company, Washington, North Carolina

New Mill making synthetic and worsted yarns. View shows process from pindrafters through roving and spinning.

BOSTON 16, MASS. 316 Stuart Street
NEW YORK 17, N. Y. 41 East 42nd Street
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OVER A CENTURY OF INDUSTRIAL PLANT EXPERIENCE

BROCHURE AVAILABLE UPON REQUEST

Continuous management services from site selection to plant completion.

LOCKWOOD GREENE
ARCHITECTS – ENGINEERS

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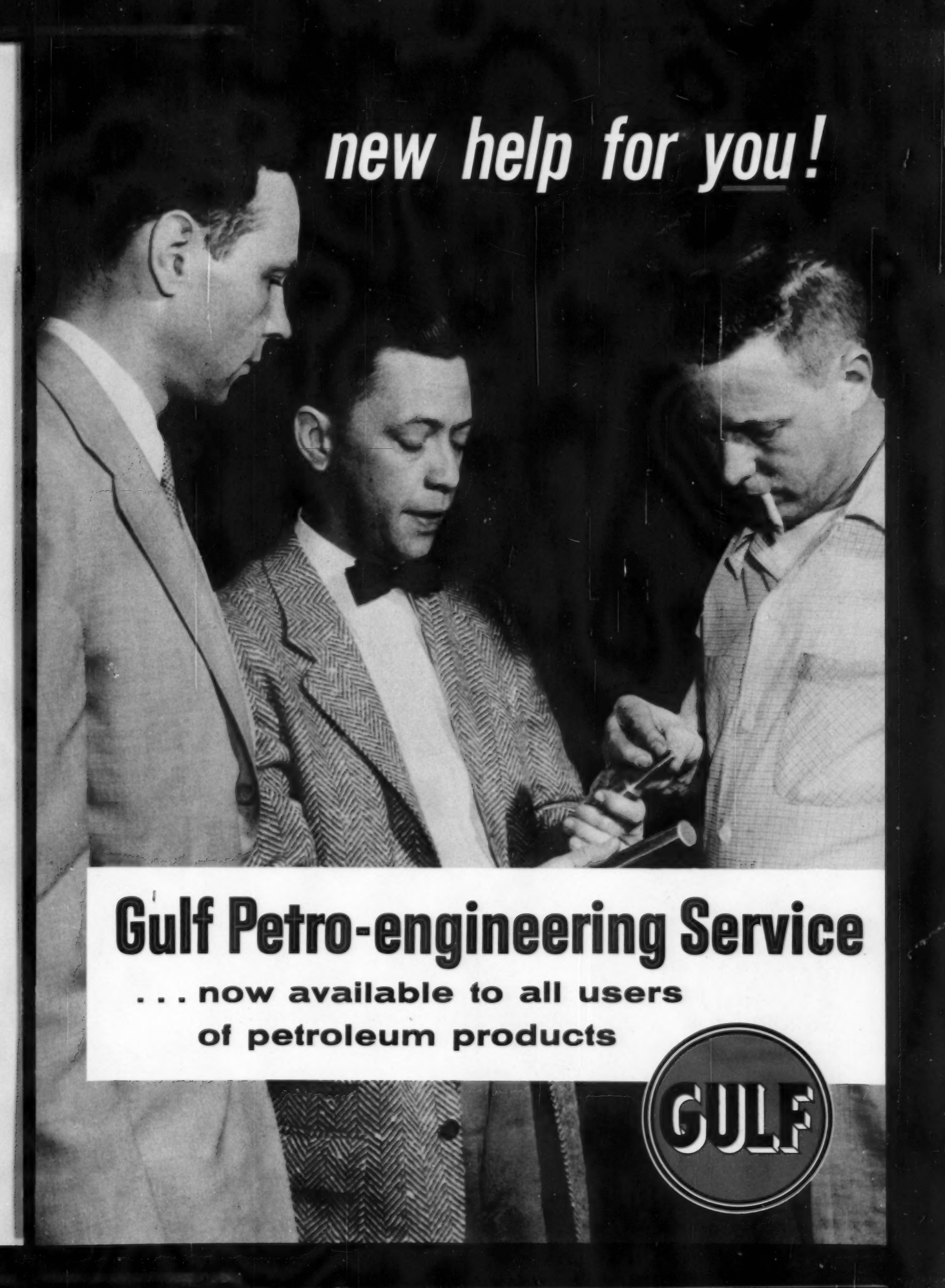

new help for you!
Gulf Petro-engineering Service
. . . now available to all users
of petroleum products
GULF

Proper engine tune-up procedures mean maximum fuel economy in fleet operations. Gulf Sales Engineers work closely with fleet maintenance superintendents to help save fuel, lengthen periods between overhauls, and increase availability of equipment.

Gulf Petro

brings you practical involving the use of

Gulf Sales Engineers can provide practical assistance to paper mill operators on any process or problem that involves petroleum products.

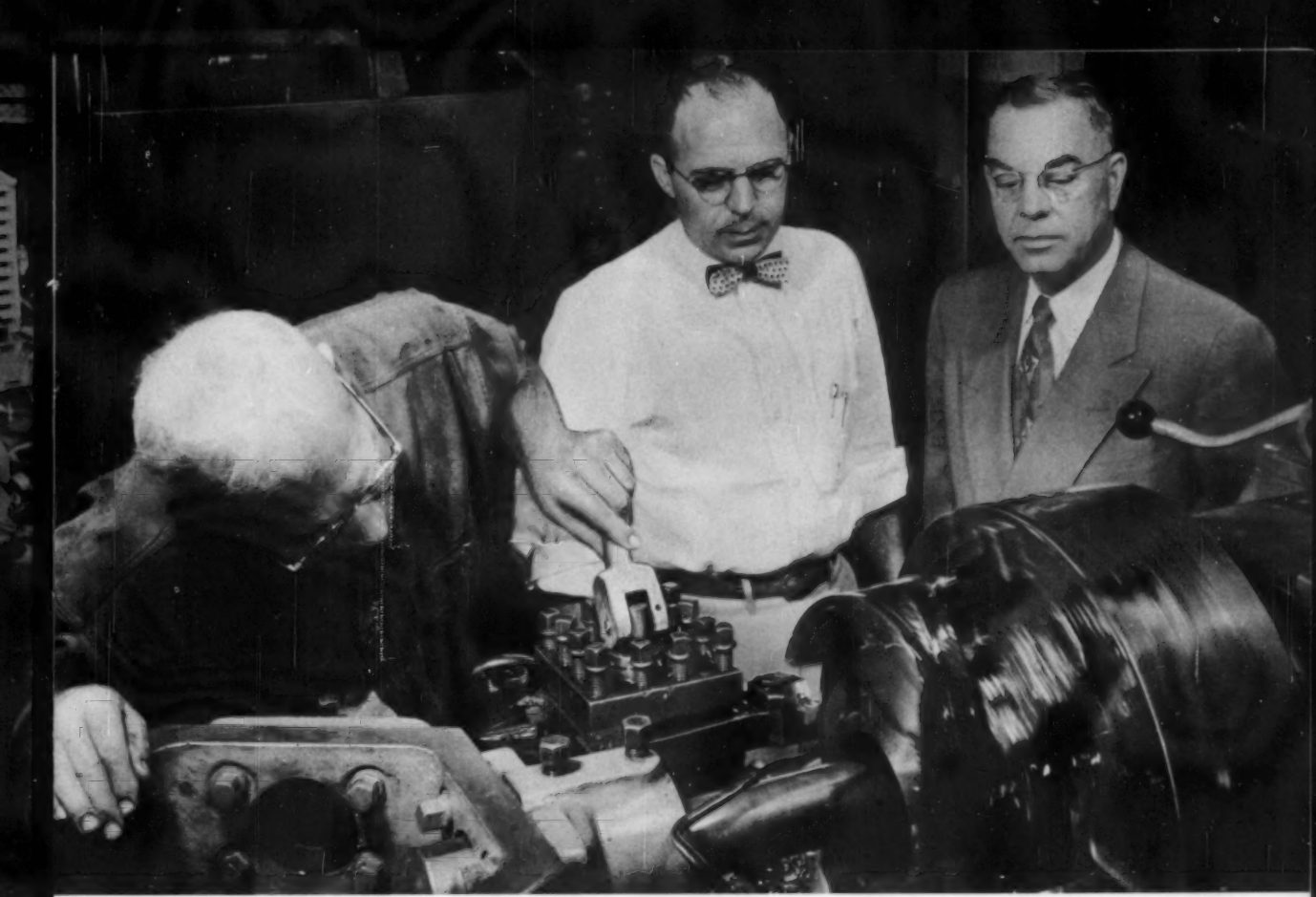
If you are engaged in manufacturing, mining or quarrying . . . construction or transportation . . . communication or public utility service—you can profit from Gulf Petro-engineering Service.

All of these fields use petroleum products. Many problems arise in connection with their use—problems of proper selection, of storage, of dispensing, of application schedules. And, most important of all, problems of equipment performance!

Very few companies, however, find it practical to hire or train qualified people to perform this specialized engineering job. Gulf offers you its own trained staff to assist you with these problems.

Gulf Petro-engineering Service puts a petroleum specialist in your plant or other base of operations to give you impartial, expert advice on any problem in any way related to the uses of petroleum products.

You can get Gulf Petro-engineering Service if you are



A Gulf Petro-engineering Service specialist can help you select the most suitable cutting fluid for each machining operation. Chances are he will find practical ways to improve production, increase tool life and lower costs.

-engineering Service

help on every problem and process petroleum products

a user of petroleum products—whether or not you have been buying those products from Gulf.

There is no charge for this service.

In essence, here's what Gulf Petro-engineering Service offers you . . .

1. Expert help with any immediate problem involving use of *any* petroleum product.
2. Practical help on any long-range problem, including those which may involve new uses or new types of petroleum products.
3. A survey of your entire operation. Aim: to help you achieve greater efficiency and economy in the use of fuels, lubricants, cutting oils, rust preventives and process oils.

Gulf has a large group of trained and experienced sales engineers ready to serve you. The typical Gulf Sales Engineer who contacts you is a graduate engineer. He has been well-schooled in the formulation and uses of petroleum products. He has the versatility and invaluable knowledge that comes through many years of practical field experience.

If yours is a highly involved or difficult problem, he can enlist the help of another specialist—a Gulf Product Application Engineer.

Behind Gulf field representatives are more than 1,300 scientists, engineers, metallurgists and chemists at Gulf laboratories specializing in the manufacture and application of petroleum products. Their knowledge, coupled with the experience of field engineers, adds up to a broader, better service than has ever been offered before to industrial and commercial users of petroleum products.

Take advantage of Gulf's Petro-engineering Service now. Use the coupon on the next page to send for booklet describing the complete service—or write or call your nearest Gulf office.

Gulf Petro-engineering Service

can be put to work for you immediately on any or all of these problems. It can help you . . .

- Plan the installation of more efficient fuel and lubricant storage and dispensing facilities.
- Get maximum fuel economy through proper engine tune-up procedures.
- Obtain maximum heat or power from each gallon of fuel oil through more efficient combustion.
- Establish proper oil change periods.
- Cut maintenance costs through improved application of lubricants.
- Select rust preventives according to the exact kinds of protection you need.
- Eliminate or reduce oil vapors, sludge deposits and corrosion of fuel oil storage tanks.
- Reduce the number and variety of lubricants used.
- Establish proper flushing procedures for both old and new equipment.
- Control dust on plant grounds and parking lots.

If you are faced with any of these common problems—or with any problems involving petroleum products in use—simply call your nearest Gulf District Office.

GULF OIL CORPORATION
Gulf Building, Pittsburgh 30, Pa.

☐ Send free Gulf Petro-engineering Service booklet.
☐ Have a Gulf Sales Engineer call.

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Company_____

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GULF OIL CORPORATION
Pittsburgh 30, Pa.

SP-8934

IN AIR CYLINDER OPERATION BELLOWS GIVES..

ALL THE ADVANTAGES OF INTEGRAL VALVING WITH EITHER 8 or 115 VOLT BUILT-IN CONTROLS

The Bellows Air Motor with the built-in 8-volt directional valve revolutionized the use of pneumatic circuits. Here for the first time was an air cylinder with directional valve, speed control valves, and electrical actuators built-in . . . to form one compact, streamlined power unit—offering instant action, positive control.

That same positive control is also available with built-in 115-volt directional valve control. The 115-volt unit offers all the advantages of compact design, instant action, proven so popular in the 8-volt unit.

Here is air cylinder power at its best—air cylinder power free of bulky power solenoids, of cumbersome piping, of complex circuitry—air cylinder power that goes hand in glove with today's streamlined design.

WRITE FOR THESE TWO BOOKLETS

Fifty pages of data to help you select the right air motor-valve combination for your job. Address: The Bellows Co., Akron 9, Ohio (Dept. TW-357).
In Canada: Bellows Pneumatic Devices of Canada, Ltd., Toronto, Ontario.

7348

The Bellows Co.
AKRON 9, OHIO

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Through the **Chem-nyle** Process

NOW... FILAMENT NYLON BECOMES A FASHION FIBER

As a functional fiber, nylon's superiority is beyond question. Its great strength, durability, resilience... coupled with its easy care have made it a major factor in the textile industry. Yet, nylon's applications in the upper reaches of fashion have been limited by one inherent weakness: "either or" dyeability.

What happens is that under conventional dyeing methods nylon achieves good color uniformity, but at the sacrifice of colorfastness. And conversely, it achieves high fastness, but at the expense of color uniformity. Now Chemstrand research breaks this deadlock with the Chem-nyle Process... *a new dyeing technique that brings to continuous filament nylon excellent color uniformity without sacrificing fastness.* At one stroke, the whole color picture for nylon changes ... going from plain to brilliant colors, from a narrow to a broad color spectrum.

Through this new dyeing method, filament nylon takes on a dyeability worthy of its other properties. Now, in addition to its great reputation as a functional fiber, *filament nylon also becomes a great fashion fiber!*

Think of what this means to you! It means the most imaginative coloring and styling effects can be freely and safely expressed in nylon. It means exciting new fabric constructions, completely new color ranges. Goods dyed by the Chem-nyle Process will have a softer, fuller hand. For the first time in its history, nylon filament yarn will take on new glamour, new drama ... new sales appeal! Now shade brilliance, so important in stimulating sales, will be offered to the public in colors never before seen in nylon... colors free of streaks, bars, flashes... colors fast to washing!

Commercial dyers have been quick to see and seize the tremendous potential offered by the Chem-nyle Process. Now the challenge is squarely up to the designers and mills to come up with the new fabric constructions, the fresh colorings made possible by this great new advance in filament nylon dyeing!

CHEMSTRAND® NYLON

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1 • DISTRICT SALES OFFICES: 3¼ Overwood Road, Akron, Ohio; 4 Pearl Street, Dedham, Mass.; 222 South Church Street, Charlotte, N. C. • PLANTS: CHEMSTRAND® NYLON—Pensacola, Fla.; ACRILAN® ACRYLIC FIBER—Decatur, Ala.

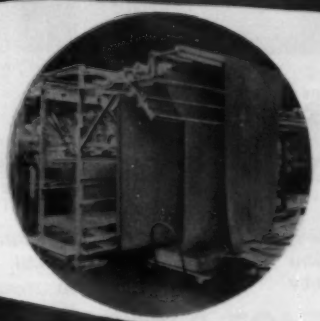
PIGMENT DYEING

can simplify operations 3 ways

Looking for ways to meet shifts in demand or market conditions easier . . . faster? Wider use of pad dyeing with SHERDYE® Pigment Colors can simplify production changes in at least three important ways:

NEW SHADES can be prepared more quickly . . . translated directly from laboratory results to production-line results.

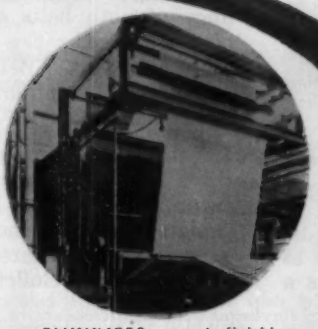
• EASIER SHADING — matches in laboratory mean matches in production



• MAKES SHORT RUNS or long runs equally practical

SHORT RUNS as low as 1000-5000 yards, as well as long runs, can be continuous-process dyed with pigment colors, efficiently and economically.

LESS PROCESSING, in most cases, is required with pigment dyeing, since dyeing and finishing can be accomplished with the same bath.



• ELIMINATES separate finishing operations

Full details on these and other advantages of SHERDYE Padding Colors may suggest more ways to simplify operations . . . cut costs . . . improve results. Contact The Sherwin-Williams Co., Pigment Color and Chemical Division, 260 Madison Ave., New York 16, N. Y.

SHERWIN-WILLIAMS

SHERDYE

PADDING COLORS

PIGMENT COLOR & CHEMICAL DIVISION

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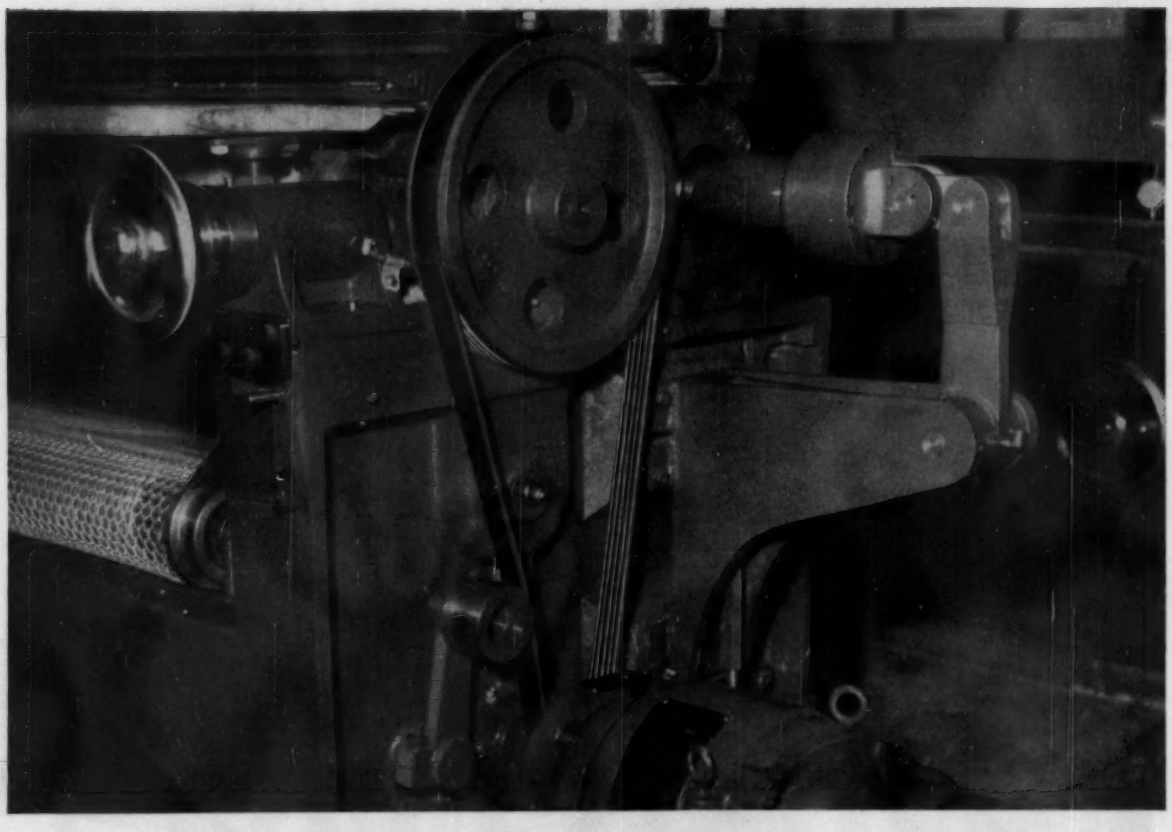

HERE'S THE IDEAL DRIVE FOR SPACE SAVING DESIGN

. . . R/M *Poly-V®* Drive!

Space-saving advantages of this completely new concept in heavy duty power transmission can mean improved drive design for a wide variety of applications.

On this buffer drive, for example, installation of patented Poly-V Drive reduced sheave width 50%! Bonus advantages? *Faster* machine operating speeds, 20% lower drive costs . . . and elimination of costly "chatter" marks on textiles, leather and other materials caused by V-belt slap during buffing operations.

R/M Poly-V Drive employs a *single, endless* parallel V-ribbed belt running on sheaves designed to *mate precisely* with the belt ribs. Flat belt strength and simplicity *plus* the positive V-groove grip of V-belts gives Poly-V Drive *twice* the tractive surface of multiple V-belts of equal width . . . up to 50% more *power delivery* in the same space as a V-belt drive, or *equal* power in as little as ⅔ the space! There's less shaft overhang, too . . . less drive weight to meet heavy duty requirements.

Poly-V's single unit design also eliminates belt matching problems, greatly increases the life expectancy of both belts *and* sheaves, maintains more constant speed ratios under *all loads*. Just *two* cross sections of Poly-V Belt meet *every* heavy duty power transmission requirement—R/M Poly-V Drive cuts costly belt and sheave inventories to a new low!

Let the R/M engineers who developed this amazing drive help you determine the installation that will mean "More Use per Dollar" for the equipment you design or the equipment you use. Contact the R/M representative nearest to you . . . or write for Poly-V* Drive Bulletin #6638.

**Poly-V is a registered Raybestos-Manhattan trademark.*

RM735

BELTS • HOSE • ROLL COVERINGS • TANK LININGS • INDUSTRIAL RUBBER SPECIALTIES

RM

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

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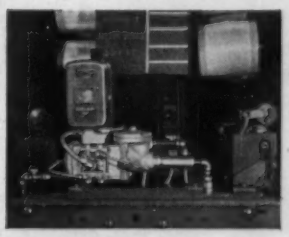
OWENS CORNING FIBERGLAS YARN PLANT

Keeps yarn clean... Keeps costs down!

WITH TIME-CLOCK-CONTROLLED *Lincoln* CENTRALIZED LUBRICATION

Without stopping production for a second, these automatic twister rings at Owens Corning's Ashton, Rhode Island plant are lubricated automatically. A pre-set electric time clock cycles the air pump, forcing refinery pure lubricant into the bearings.



Of course, this eliminates the costs of man-power and machine down-time for hand oiling. Equally important, it eliminates the hidden costs of hand oiling...yarn spoilage caused by oil dripping from over-lubricated bearings... and excessive wear resulting from inadequate lubrication.

***LINCOLN** Centralized Lubrication slashes costs in all operating categories... puts the right lubricant in the right place at the right time... automatically!*

Write For Complete Details... your free copies of catalogs 80-1 and 806 are ready and waiting!

Lincoln

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5742 Natural Bridge Avenue · St. Louis 20, Missouri
...THE MOST TRUSTWORTHY NAME IN LUBRICATING EQUIPMENT

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For Quality Finishing of Woolen and Worsted Fabrics . . .

Kyro AC

THE MODIFIED AMINE CONDENSATE

Amine condensates are not all alike! Most of them scour well but fall down in the crucial fulling operation. *Kyro AC fulls like soap and scours better than soap.* It is a truly versatile detergent and a fast rinser. Kyro AC replaces soap completely in normal fulling and scouring with substantial savings in washer time and hot water.

Superior Performance of Kyro AC shows in—

- "Acid" fulling and scouring of wool fabrics carbonized in the grease. Produces a soap-type finish.
- Cutting down fulling time . . . eliminating wrinkles . . . minimizing stretch-out in the washer and dye kettle. Produces fabrics of noticeably better body and cover.
- Fulling and scouring color-sensitive stock-dyed fancy woolens.
- Noticeably less flocking . . . lower dead loss.
- Better uniformity in fulling.
- Piece dyeing . . . clearer, brighter shades.
- Fulling and scouring sweater bodies—cashmere, lamb's wool and blends. Retains the natural softness of cashmere.

Procter & Gamble

Textile Finishing Sales Dept., Cincinnati 1, Ohio

Makers of **OLATE, PROXOLS, ORVUS** *and* **PROFINE** *products*
. . . for smoother textile processing

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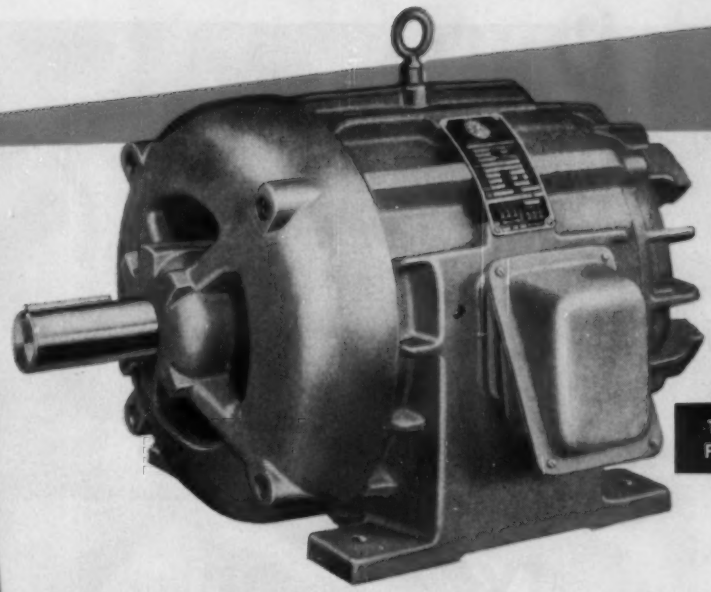

Type "DIL" Totally-Enclosed, Fan-Cooled Textile Mill Motor

new DIEHL *streamlined design*

Puts more features in less space

Here's a new textile mill motor which has the efficiency, performance characteristics and service factor of an open-type motor with the added advantages of totally-enclosed, fan-cooled construction . . . *yet it's no larger in size than a standard open-type motor* (*see Fig. A*).

Inside and out, the DIEHL Type "DIL" Motor is designed and built for top performance, maximum protection, long life, ease of installation and ease of maintenance in textile service. Note the heavy duty drive end bearing design, Fig. B, and the versatility in making lead connections, Fig. C.

The Type "DIL" Motor is adaptable to all types of textile machinery and, conforming to NEMA frame sizes and mounting dimensions, may readily be installed beneath spinning and twisting frames.

Write today for full details about this outstanding new development.

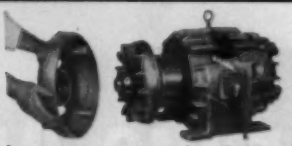

Fig. A

Note the compact space-saving design of fan blade and end-cover, the fan blade serving as part of the motor enclosure. Rotor is partially withdrawn to show the unitized construction of rotor and blade which assures maximum transfer of heat to the ventilating system.

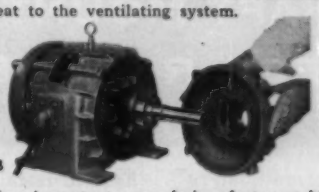

Fig. B

Another important new design feature which helps make this motor the outstanding choice for purchasers of textile mill motors is the locked-in, pre-lubricated heavy duty ball bearing, on the drive end, which assures maximum bearing life.

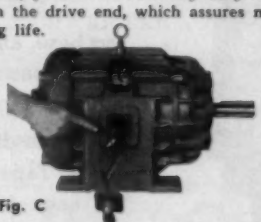

Fig. C

Regularly supplied with standard leads and terminal box. Obtainable with 5-foot type "ST" vinyl-covered cable, oil and watertight fittings, and knife-type disconnectors on the motor terminal leads for convenience in servicing, at slight additional cost.

DIEHL MANUFACTURING COMPANY
Electrical Division of THE SINGER MANUFACTURING COMPANY
Finderne Plant, SOMERVILLE, N. J.

☐ *Please send me* Textile Bulletin No. TW 3526
☐ Have your representative call

NAME_____

COMPANY_____

STREET_____

CITY_____ ZONE_____ STATE_____

Diehl

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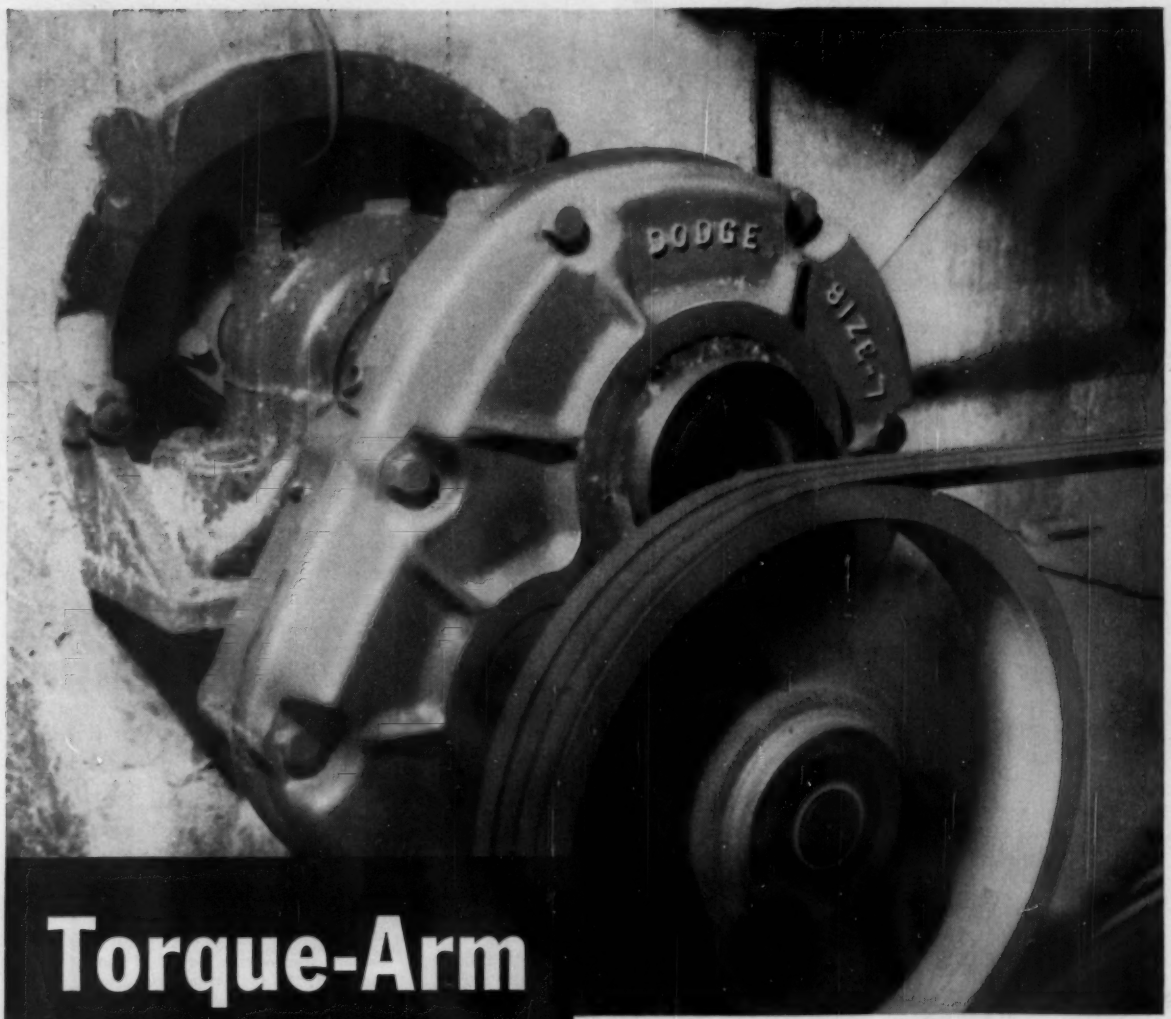
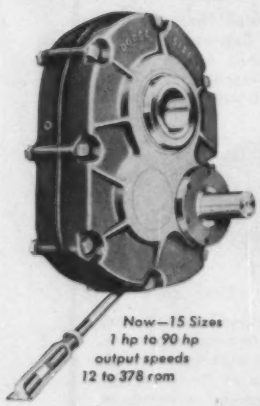


Torque-Arm

SHAFT-MOUNTED SPEED REDUCERS

Size 7 Torque-Arm Speed Reducer on agitator in paper mill

Save Up to 1/3 in Installation —Deliver 97% Efficiency!



Now—15 Sizes 1 hp to 90 hp output speeds 12 to 378 rpm

Easy to install! Mounted directly on the driven shaft. Locked at both ends. Dodge Torque-Arm Speed Reducer requires no foundation, no flexible coupling, no sliding base, and there's no lining-up problem. Amazing economy is matched by efficiency in operation—up to 97%.

Unit is driven through V-belt drive. Stock Taper-Lock Sheaves prescribed for each job permit speed ratios required. Tri-Matic Overload Release and backstop available, if desired. Dodge Torque-Arm is America's most complete line of shaft-mounted Speed Reducers. Ask your Dodge Distributor—or write us.

•

DODGE MANUFACTURING CORPORATION
1400 Union Street, Mishawaka, Indiana

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new methods. Look for his name under "Power Transmission Machinery" in the yellow pages of your phone book—or write us.

DODGE
of Mishawaka, Ind.

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only nylon carpeting offers so many advantages

BEFORE...

DURING...

and especially

AFTER the sale!

You are selling positive performance characteristics when you sell nylon carpeting. It's sound merchandising for you, and true value for your customer, when you offer the performance pluses that make nylon today's best buy in carpeting.

HERE THEY ARE:

1. **Permanent Textures.** More *permanent* than wool, cotton or rayon.

2. **Resists Abrasion and Scuffing.** Will out-wear comparable carpeting made from *any other* fiber.

3. **Resists Crushing and Matting.** More crush resistance and less matting than comparable wool, rayon or cotton floor coverings in service.

4. **More Resilient.** More resilient than comparable wool, rayon or cotton floor coverings after continued usage.

5. **Cleanable.** Nylon is an easy-to-care-for fiber. The round, smooth nylon fibers prevent dirt from clinging. May be spot-cleaned and shampooed. Dries quickly.

6. **Economical.** The strongest and toughest of all carpet fibers, nylon will out-wear comparable wool and rayon fabrics, thus be actually less expensive in the long run.

7. **Mothproof, Insect-Resistant.** Never a worry about moths! Carpet beetles cannot attack nylon carpeting.

8. **Decorator Colors.** Nylon can be dyed in lasting colors and an attractive range of shades.

Any reliable manufacturer can deliver these benefits in carpeting made from 100% IRC NEW NYLON fiber. In addition, manufacturers can, and are delivering superior carpeting using respectable percentages of nylon and featuring many of the pluses listed above.

THE NEW Nylon Staple I·R·C

INDUSTRIAL RAYON CORPORATION, Sales Offices: 500 Fifth Ave., New York 36, N. Y. 627 Guilford Bldg., Greensboro, N. C

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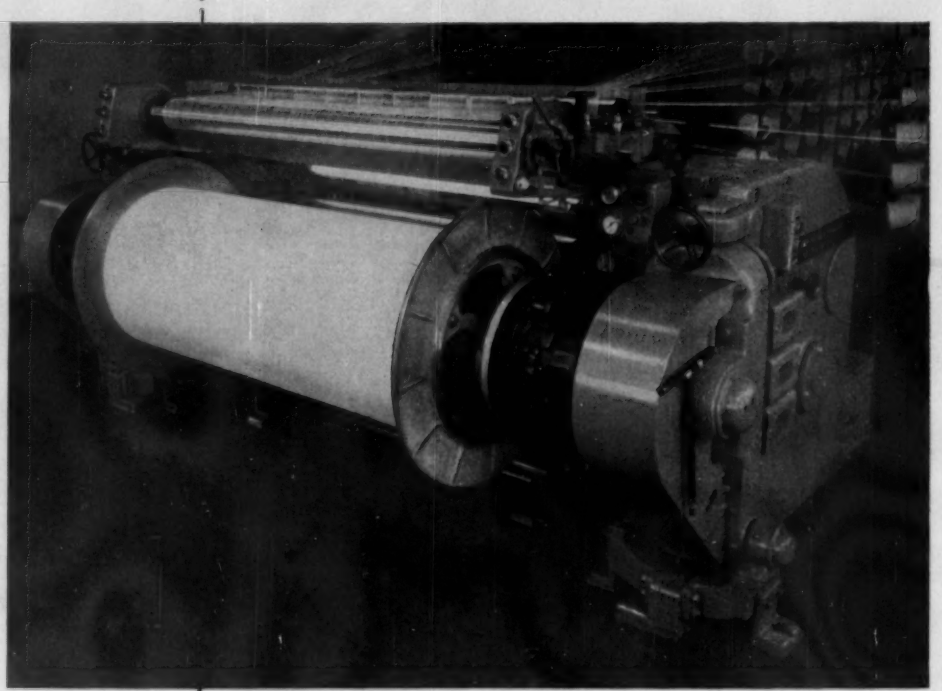
"Not One 'Blown' Dye Beam in 1000"

Cocker No. SD-54 Warper

This warper has proven of exceptional value in producing dye beams of soft, even density throughout. It permits lower and evener pressure in dyeing . . . quick and even dye penetration . . . increased speeds by 60% . . . and minimizes danger of blowing. "Not one blown dye beam in a thousand" is the report from one mill.

The air-controlled presser roll on the Model SD-54 can be set to any desired density — hard or soft — and accurately maintains that pressure from beginning to end. Horizontal traverse on comb and roll prevents channeling. Driving and braking beam from both ends eliminates backlash in starting or stopping. Patented differential yarn speed control, extra heavy duty bearings, electrically controlled doffing, and other valuable features make this the most serviceable warper for any yarn or purpose. Operates at speeds of 550 yds. per min. on dye beams and over 700 yds. on general warp beams.



New England and Canadian Representatives:

J. S. Fallow & Co., 279 Union St., New Bedford, Mass.
1215 Greene Ave., Montreal 6, Canada

Write for full information today.

THE LEADER AROUND THE WORLD

COCKER Machine and Foundry Co., Gastonia, N. C.

WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

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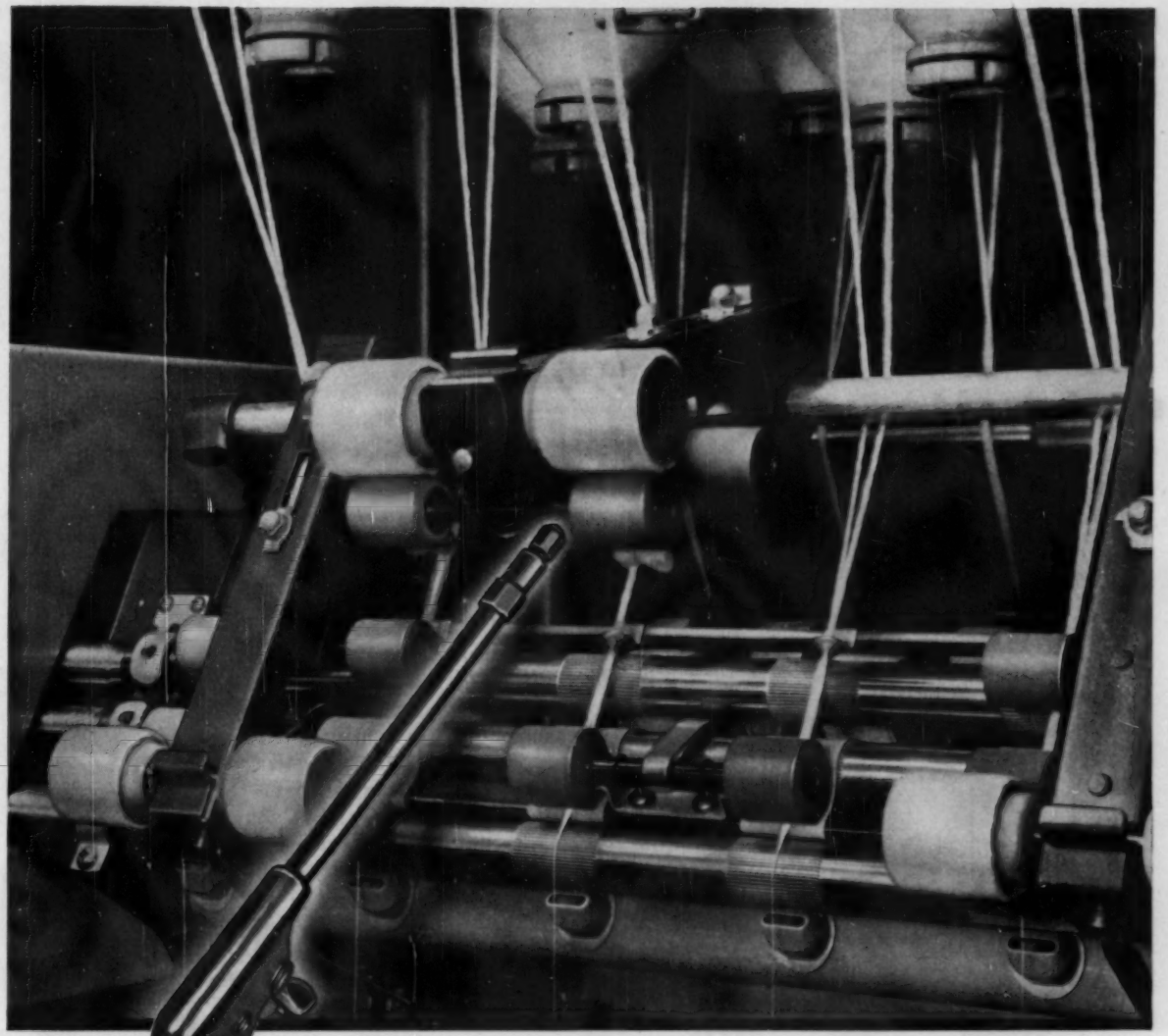


END DRIP SPOILAGE!

Protect your yarn and roll coverings from needless spoilage... switch to Sinclair NO-DRIP lubrication! These outstanding lubricants give complete bearing protection, yet stay put. They won't creep or throw out of bearings—remain fluid—permit rolls to turn easily and smoothly.

Sinclair NO-DRIP Numbers 8, 12, 15 and 17 can save you money through smooth operation and low maintenance costs. Call your Sinclair Representative today, or write for the new NO-DRIP pamphlet to Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N. Y. *There's no obligation.*

SINCLAIR

NO-DRIP TEXTILE LUBRICANTS

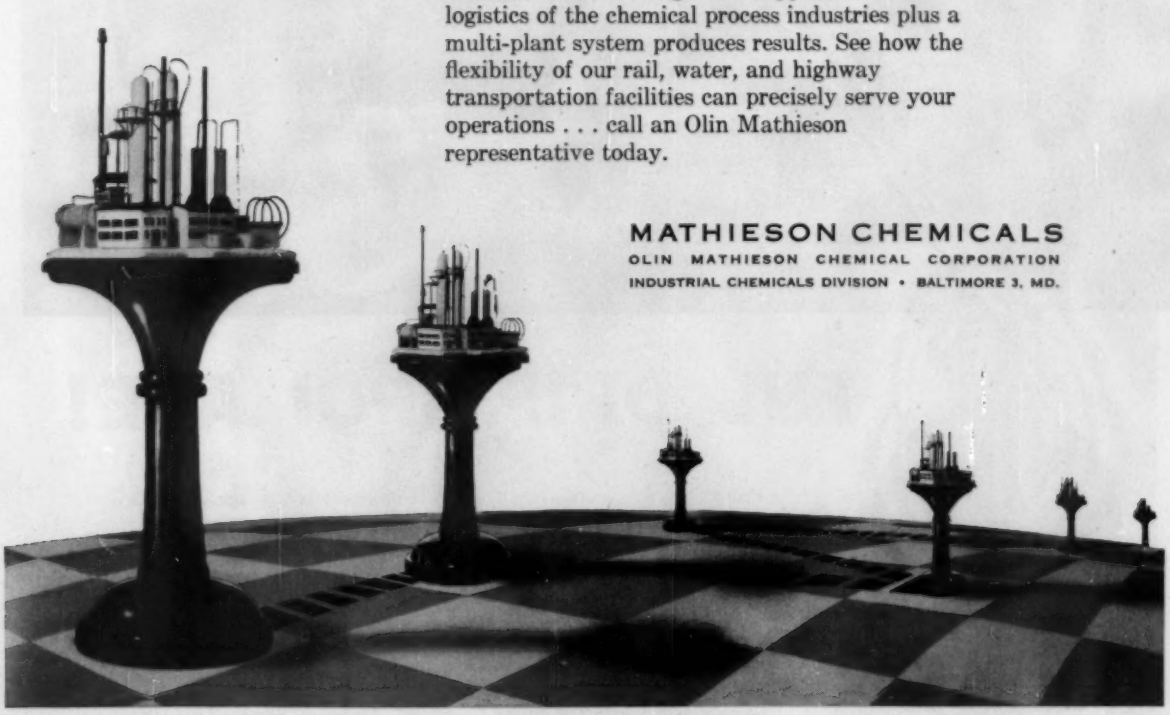
For more data, write this page number on Reader-Service card. →

ubiquitous chemicals

CHEMICAL PROGRESS WEEK-APRIL 8-12

Where needed, when needed—maximum dependability of chemical supply is best assured by a multi-plant set-up. It smooths out local shortages and surpluses . . . assures you of shipments on schedules that meet your most exacting requirements.

Olin Mathieson's imaginative approach to the logistics of the chemical process industries plus a multi-plant system produces results. See how the flexibility of our rail, water, and highway transportation facilities can precisely serve your operations . . . call an Olin Mathieson representative today.



MATHIESON CHEMICALS
OLIN MATHIESON CHEMICAL CORPORATION
INDUSTRIAL CHEMICALS DIVISION • BALTIMORE 3, MD.

MATHIESON

INORGANICS: Ammonia • Bicarbonate of Soda • Carbon Dioxide • Caustic Potash • Caustic Soda • Chlorine • Hydrazine and Derivatives • Hypochlorite Products Muriatic Acid • Nitrate of Soda • Nitric Acid • Soda Ash • Sodium Chlorite Products • Sulphate of Alumina • Sulphur (Processed) • Sulphuric Acid • **ORGANICS:** Ethylene Oxide • Ethylene Glycols • Polyethylene Glycols • Glycol Ether Solvents • Ethylene Dichloride • Dichloroethylether • Formaldehyde • Methanol • Sodium Methylate Hexamine • Ethylene Diamine • Polyamines • Ethanolamines • Trichlorophenol

4688

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Top Quality Cloth... Produced Faster!

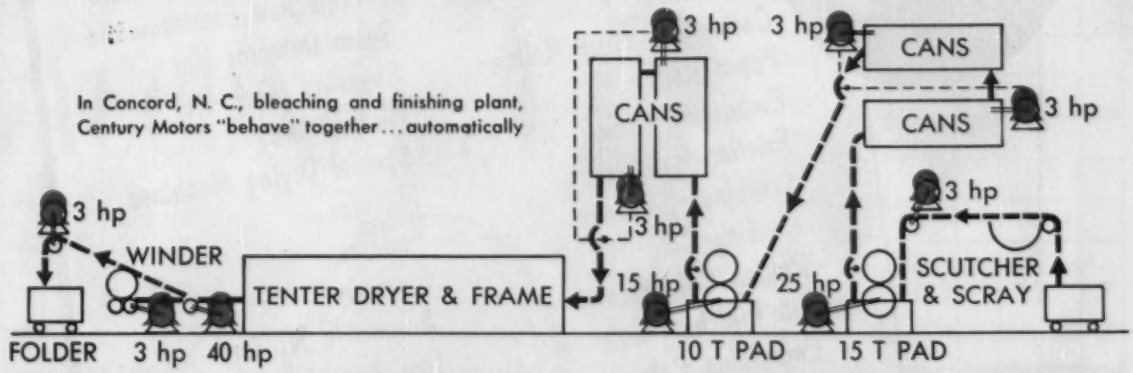
Precise speed correspondence of

Century

SELECTIVE SPEED DRIVE

automatically controls processing of this Tenter Range

In Concord, N. C., bleaching and finishing plant, Century Motors "behave" together... automatically



From scutcher and scray, through padders, dry cans, tenter dryer and frame, and winder or folder . . . cloth travel through this Tenter Range is precisely controlled by a Century Selective Speed Drive.

A 40 H.P. motor automatically "leads" the other 9 motors of the Drive—and all 10 motors are kept in an extremely accurate, constantly maintained speed correspondence. In its first 14 hours of operation, this range processed 54 miles of cloth . . . and is running like clockwork.

Century has more than 50 years' experience in engineering DC motors. Whatever your problems in textile processing drives, our application engineers will be glad to talk with you. Call or write your nearby Century District Sales Office or Authorized Distributor.

Performance-Rated© MOTORS
1/20 to 400 H.P.

CENTURY ELECTRIC COMPANY

77B

1806 Pine Street • St. Louis 3, Missouri • *Offices and Stock Points in Principal Cities*

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ENGINEERED AND BUILT BY

PERKINS

For the TEXTILE Industry

Cotton Rolls
Cotton and Wool Rolls
Combination Rolls
Cotton and Husk Rolls
Paper Rolls
Embossing Rolls
Friction Rolls
Schreiner Calenders
Chasing Calenders
Rolling Calenders
Silk Finishing Calenders
Embossing Calenders
Calenders for finishing woven plastic (Saran)
Rubber Thread covering Machines
Vinyl Embossing Calenders for Plastic Sheeting

Seam and Slub Detectors
Perkins new Electraumatic Seam Detector (for Shearing Machines)
Cloth Pilers
Special Drying Machines
Mangles
Padders
Squeezers
Automatic Winders
Dye Jigs
Hydraulic Power Units
Mullen Testers

Special Rolls and Machinery to Customers' Specifications

B. F. PERKINS & SON, INC.
HOLYOKE · MASSACHUSETTS
SOUTHERN SALES OFFICE · 1609 LIBERTY LIFE BLDG · CHARLOTTE · NORTH CAROLINA

LARGEST MANUFACTURERS OF CALENDER ROLLS IN THE WORLD

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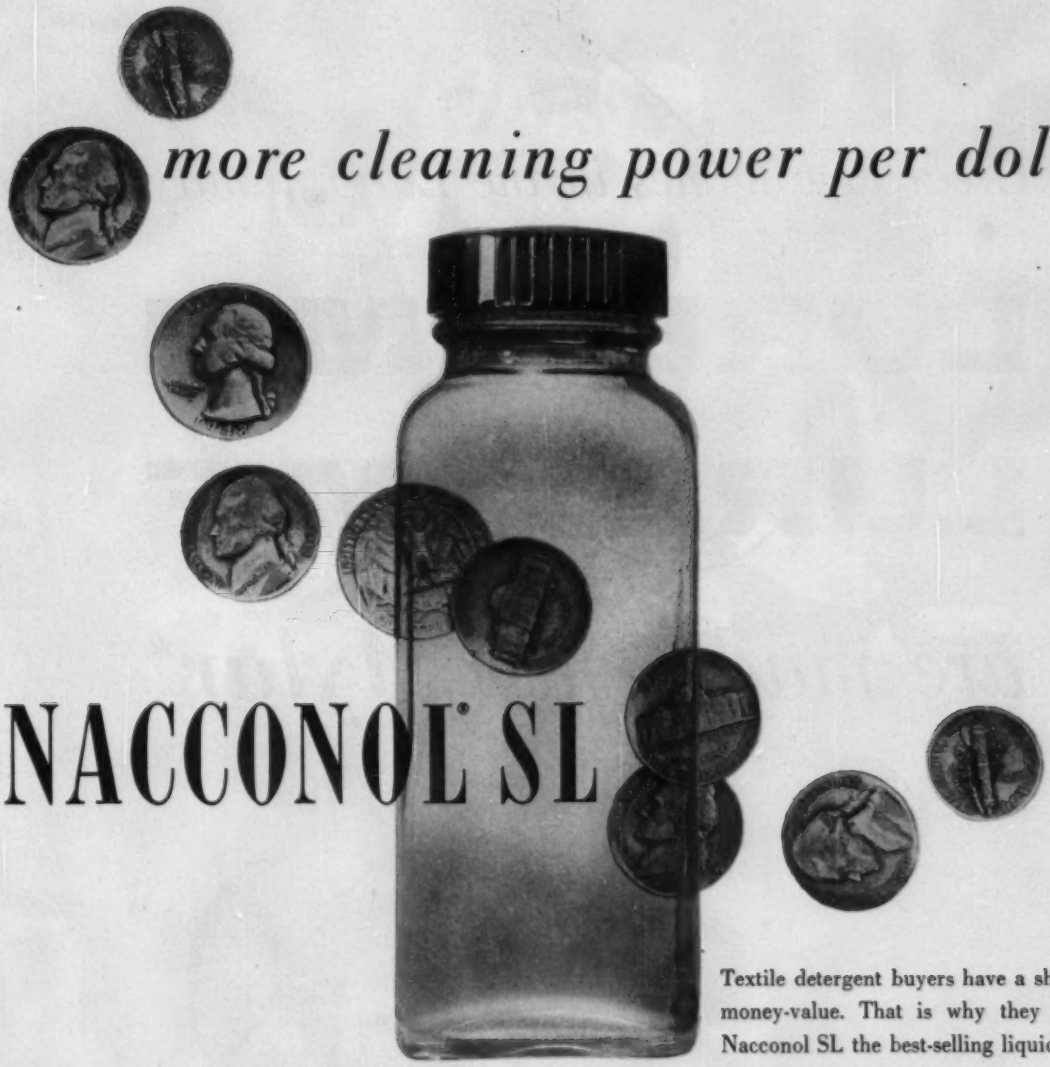
more cleaning power per dollar!



NACCONOL® SL

Nacconol

NATIONAL ANILINE DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 RECTOR STREET, NEW YORK 6, N.Y. • HAnover 2-7300

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Chattanooga 2, Tenn., 1205 James Bldg. Chattanooga 6-4347
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Richmond 19, Va., 8 North Fifth St. Richmond 2-1930
San Francisco 4, Cal., 225 Montgomery St. YUkon 2-6040
Toronto 14, Can., 100 North Queen St. E. HEmlock 3-6379

Allied Chemical

Textile detergent buyers have a sharp eye for money-value. That is why they have made Nacconol SL the best-selling liquid detergent* in the textile industry.

They know that Nacconol SL gives them more cleaning power per dollar on an active-ingredient basis compared with most dry products.

And Nacconol SL cuts production costs, too, because it is cleaner and easier to handle. Liquid Nacconol SL requires no dissolving.

If you're not using Nacconol SL now, get our price and request a sample. You'll find it's your best money-value today.

Other popular forms of Nacconol for wet processing are Nacconol DB, Nacconol DBX and Nacconol NRSF.

*Alkyl aryl sulfonate

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Great new names in the Lurex family

LUREX MM
LUREX MF

*are made with Mylar**

Q: What is the difference between Lurex MM[†] and Lurex MF?
A: *Lurex MM is made with metalized Mylar; metalized Mylar is a component. Lurex MF is produced with aluminum foil and Mylar.*

Q: What are the special advantages of Lurex MM?
A: *Lurex MM combines high brilliance with exceptional softness.*

Q: What are the special advantages of Lurex MF?
A: *Lurex MF allows the broadest possible range of accepted textile finishing combined with ease in mill handling.*

Q: Isn't the name that's known the name that sells?
A: *Lurex MM and the great names in the Lurex family are nationally advertised.*

*MYLAR IS A REGISTERED DU PONT TRADEMARK [†]U. S. Pat. No. 2714569

Feature the name that's known in metallic yarns — Lurex, non-tarnishing metallic yarn made only by the yarn division of

The Dobeckmun Company, Cleveland 1, Ohio • New York: 350 Fifth Ave. • London • Amsterdam

Berkeley, Calif. • Boston • Philadelphia • Charlotte, N. C. • Chicago • Detroit • Manufacturing Affiliates in Canada: William B. Stewart & Sons Ltd., Toronto and Montreal

Look to Sandoz

for Vat Dyes that answer your colorfastness problems

At Sandoz you will find the Sandothrene Ultrasperse® vat dyes that lock the color into the fibers... permanently. These Ultrasperse products are available in a wide variety . . . dyeing types and printing types . . . with special printing types for flash ageing.

With your next color problem—take full advantage of the complete application information, the long and valuable experience and the direct and constructive service which Sandoz provides. SANDOZ CHEMICAL WORKS, INC., 61 Van Dam Street, New York 13, N. Y. ALgonquin 5-1700.

SANDOZ

THINKS AHEAD WITH TEXTILES

SANDOZ

Mauser-Special

MAUSER SPECIAL

in a new form

High-Speed Machine with fully automatic lubrication

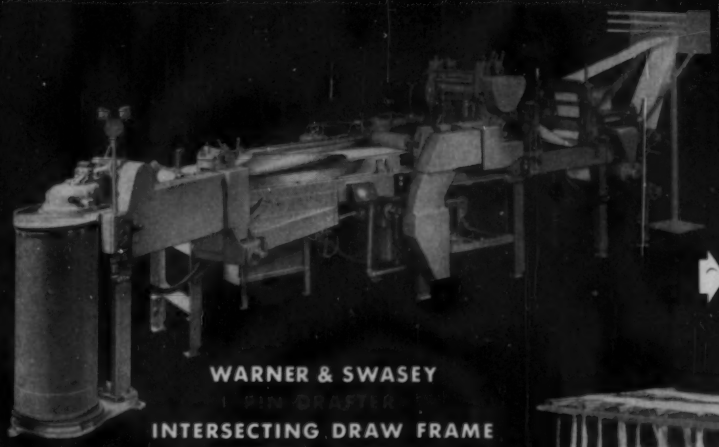
OUR MANUFACTURING PROGRAM INCLUDES :

- Overlock Machines
- Single-Chainstitch Machines
- Double-Chainstitch Machines
- Machines for Sewing Elastics
- Band-Attaching Machines
- Border-Attaching Machines
- Bag Sewing Machines
- Cylinder Machines
- Feed-off-the-arm Seam-Felling Machines
- Feed-off-the-arm Flat-Seam Machines "MAUSER LOCK"

Sole Distributors in U. S. A.

National Machinery Corp., Suite 5119—Empire State Bldg., 350 Fifth Ave., New York 1, N. Y.

INDUSTRIE-WERKE KARLSRUHE Aktiengesellschaft · KARLSRUHE (Germany)



WARNER & SWASEY

PACIFIC CONVERTER

WITH HEAT-STRETCH UNIT

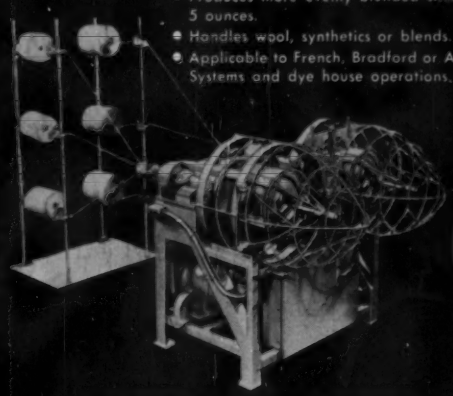
- Converts *all* types of synthetic tow to crimped sliver.
- Cuts and accurately blends synthetics or natural fibers.
- Eliminates blending, carding and gilling operations.
- Heat-stretch unit gives *controlled shrinkage* of high bulk fibers—unit can be added to all existing converters.
- High production—100 to 130 lbs. per hour.

WARNER & SWASEY

INTERSECTING DRAW FRAME

SINGLE HEAD—DOUBLE HEAD

- Single Head—single or dual can delivery.
- Double Head—dual or quad can delivery, or balling head.
- Better balanced, 50% greater production.
- Speed increased to 1,500 drops per minute.
- Produces more evenly blended sliver up to 5 ounces.
- Handles wool, synthetics or blends.
- Applicable to French, Bradford or American Systems and dye house operations.



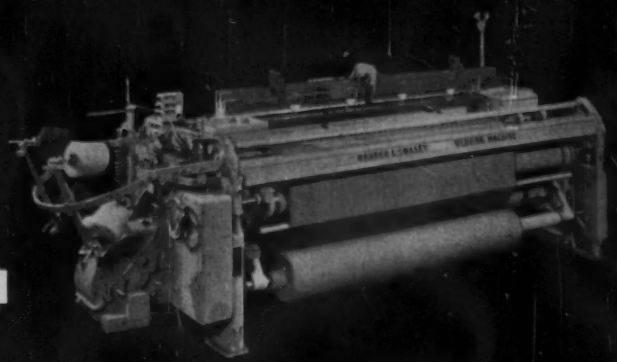
WARNER & SWASEY

WHIRLWIND TWISTER-WINDER

- More than doubles existing twisting speeds—twists up to 11,000 T.P.M. —winds up to 150 yd./min.
- 2 for 1 twist—.85 to 7.76 T.P.I.
- Large precision sales packages up to 30 lbs., either cone or tube.
- Produces wide variety of finished cord sizes—2,000 to 50,000 denier.
- Requires a minimum of floor space.

WARNER & SWASEY—SULZER®

WEAVING MACHINE



- Operates at 240 P.P.M.—almost twice the speed of other weaving equipment.
- Gives improved work quality.
- Available with Filling Mix Unit for blends and shark-skin weaves.
- Drastically reduces burling and mending costs.
- Adaptable for weaving worsteds, woolens, synthetics and specialties such as paper.

SALES OFFICES: *Main Office and Factory:* 5701 Carnegie Avenue, Cleveland 3, Ohio • 61 Rivulet Street, North Uxbridge, Mass. Suburban Square Bldg., Ardmore (Philadelphia), Pa. • 121 11th Street, N. E., Atlanta 3, Ga. • 624 Pecan Avenue, Charlotte 1, N. C.

® Reg. U. S. Pat. Off.

Product quality, output and profits—all rise with Warner & Swaseys on the job

YOU CAN PRODUCE IT BETTER, FASTER, FOR LESS ... WITH A WARNER & SWASEY

For more data, write this page number on Reader-Service card. →

New quality standards for man-made fibers set by Acrilan

← For more data, write this page number on Reader-Service card.

Current production, controlled by the most exacting specifications in the industry, is yielding Grade A Fiber of unexcelled uniformity.

The reports have been coming in for almost two years now . . . mill after mill citing Acrilan as the smoothest-running, most efficient fiber in their plants today.

The story behind these reports is a most significant one for mill operators. For today's delivered production marks a tremendous advance in the performance of Acrilan . . . and this performance, in turn, is setting new standards formerly deemed unattainable by the newer man-made fibers.

The story starts with a basic concept of exactly what Quality Control is—and is not.

It is *not*, in our terms, just a matter of spot sample checking and finished product inspection.

It *is* by our definition, a system of the strictest specifications, tolerances and checks for controlling every single step in the manufacturing process of Acrilan acrylic fiber. In fact, the control limits now set for our production standards are *many times more severe* than those generally considered feasible in the fiber industry.

This concept of Quality Control has already proven itself at Chemstrand's Pensacola plant where new standards for nylon production have been set.

Here's what it can mean to you in Acrilan acrylic fiber:

STAPLE LENGTH UNIFORMITY we believe to be unexcelled. The use of newly-developed electronic controls and round-the-clock cutter inspection has achieved this.

SHARP REDUCTION OF PLY

in hibulk and heavy denier fibers . . . effected through improved processes. This reduction has significantly raised yarn quality and lowered mill cleaning costs and waste.

FAR BETTER FINISH CONTROL

. . . with the direct, resultant effect of improving carding and spinning uniformity, mill efficiency and product quality.

UNIFORM DYEABILITY

In the last 2 years there has been no change in dye merge numbers . . . a record few fibers can boast.

We cite these as typical advances made by quality control in the uniformity and performance of Acrilan. The full list is far longer.

Its aggregate effect has been to raise and maintain the current, daily yield of top-grade Acrilan fiber at a uniform level surpassing all previous standards for the industry.

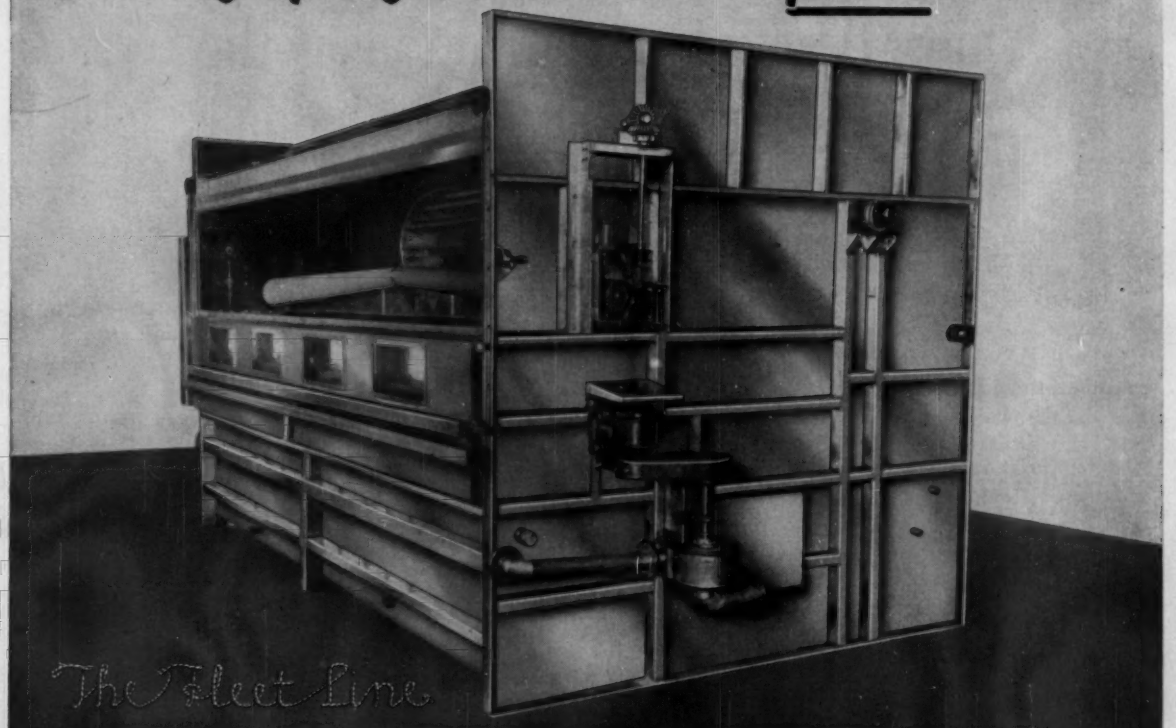
To you, concerned with mill operation, this obviously means new increases in production efficiency, new reductions in production imperfections and, consequently, new highs in yarn quality.

And far from being the end of the story . . . we see this as the beginning. Each new advance in Acrilan fiber quality, each new gain in uniformity furnishes Quality Control with a still better standard for still further improvement!

THE CHEMSTRAND CORPORATION • GENERAL SALES OFFICES: 350 FIFTH AVE., NEW YORK 1, N. Y. • DISTRICT SALES OFFICES: 3½ Overwood Road, Akron, Ohio; 4 Pearl Street, Dedham, Mass.; 222 South Church Street, Charlotte, N. C. • PLANTS: ACRILAN® ACRYLIC FIBER—Decatur, Ala.; CHEMSTRAND® NYLON—Pensacola, Fla.

For more data, write this page number on Reader-Service card. →

For rug dyeing headaches - the proved cure is



The Fleet Line

RUG DYE KETTLE

This cost-cutting equipment has been thoroughly proved in several years of service. It enables you to do even, level, quick dyeing — side-to-side and end-to-end — of heavy materials in open width . . . cotton or any synthetics, whatever the demand may be . . . richer, thicker goods as required . . . eliminating the high cost of seconds due to uneven dyeing. You can —

Dye many varieties of weaves, keep up with the constantly changing demand for dyeing various synthetics and blends.

Double or triple the speed of your operation on many rug types by *simultaneous multiple dyeing* of different widths — with special guiders enabling you to run through various widths of rug fabric at the same time.

Write for bulletin giving all features of R & L Stainless Steel Rug Dye Kettle. We advise on all dyeing equipment problems.

R & L Rug Dye Kettle proved in service in many plants

ADVANTAGES

Dyes open widths or rope
Multiple width dyeing
More level dyeing
Faster dyeing cycle
Lower dyeing costs
Lower labor costs
Proved, assured results
Easier maintenance

RIGGS AND LOMBARD INC.

FOOT OF SUFFOLK ST., LOWELL, MASS.

Agents: Paul A. Merriam Company, P.O. Box 86, Providence, R. I., Albert R. Breen, 80 E. Jackson Blvd., Chicago 4, Ill., Larry T. Nelson, 2824 S. W. Montgomery Drive, Portland, Ore., F. W. Warrington Co., 611 Johnston Bldg., Charlotte, N. C., A. Harold Zayotti, Jr., P.O. Box 125, Riverton, N. J., H. E. Mott Co., Limited, Brantford, Ontario, Canada.

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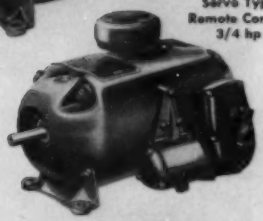
VICKERS® Variable Speed HYDRAULIC TRANSMISSIONS

Their Rapid and Accurate Response to Input Signals

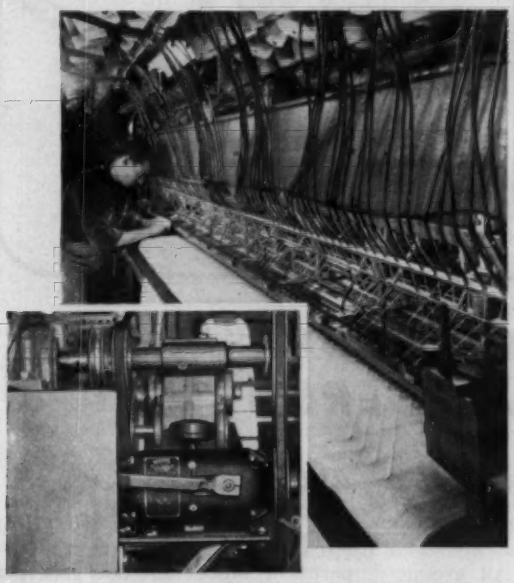
Means:

Handwheel Type Manual Control 3/4 hp



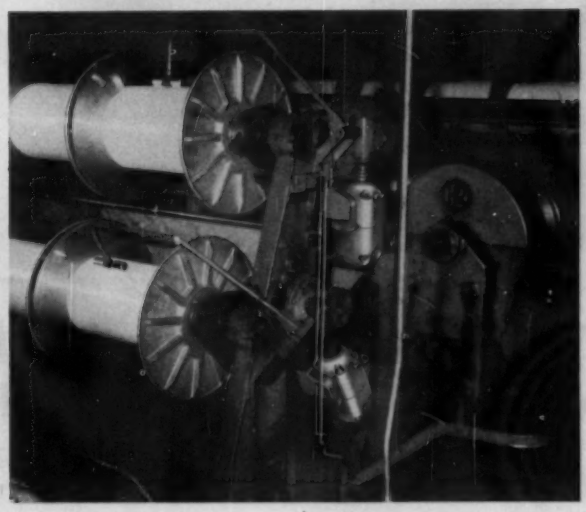
Servo Type Remote Control 3/4 hp

1 BETTER and FASTER TUFTING



Cabin Crafts, Inc., Dalton, Georgia, makers of tufted textiles, uses Model TR3 Vickers Hydraulic Transmissions to *accurately control the varying lateral position* of the cloth fed at a fixed rate to the fixed position needles that do the tufting. Automatically, the continuous and accurate speed change enables them to manufacture varying patterns in tufting not practical by conventional methods of speed control. New patterns and old patterns alike can be made better and faster because of the extremely sensitive response of Vickers Hydraulic Transmissions to input signals.

2 REDUCED THREAD BREAKAGE



At the E. Richard Meinig Co., Reading, Penna., Model TR3 Vickers Hydraulic Transmissions are used to drive beam rolls of cotton or nylon filament into knitting machines. *Tension of the thread is accurately controlled* due to the infinitely variable speed and the rapid, precise response of the transmissions to input signals. Thread breakage is reduced to a minimum, resulting in increased production, better quality and pattern control. Also, it is possible to run elastic materials on a standard machine with this modification. Maintenance has been negligible since the installation of these TR3 Transmissions in 1948.

WHAT CAN THEY DO FOR YOU?

There are numerous other applications in the textile industry where the precise control of variable speed or tension provided by Vickers Variable Speed Hydraulic Transmissions means a better product at a reduced cost. Additional important advantages are automatic overload protection that prevents damage to the machine and the virtual absence of maintenance and downtime. The TR3 is available with a Servo (for use with V dancer rolls, cams, pattern wheels, etc.) or manual control as shown at upper right. *Write for Bulletin 47-408.*

VICKERS INCORPORATED
DIVISION OF SPERRY RAND CORPORATION
ADMINISTRATIVE and ENGINEERING CENTER
Department 1588 • Detroit 32, Michigan

Application Engineering Offices: • ATLANTA • CHICAGO • CINCINNATI • CLEVELAND • DETROIT • GRAND RAPIDS • HOUSTON LOS ANGELES AREA (El Segundo) • MINNEAPOLIS • NEW YORK AREA (Summit, N.J.) • PHILADELPHIA AREA (Media) • PITTSBURGH AREA (Mt. Lebanon) • PORTLAND, ORE. • ROCHESTER ROCKFORD • SAN FRANCISCO AREA (Berkeley) • SEATTLE • ST. LOUIS • TULSA • WASHINGTON • WORCESTER
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7395

ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

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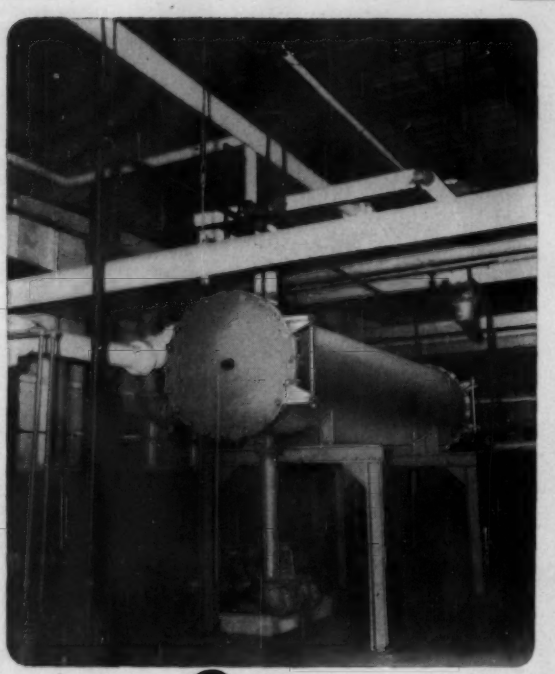

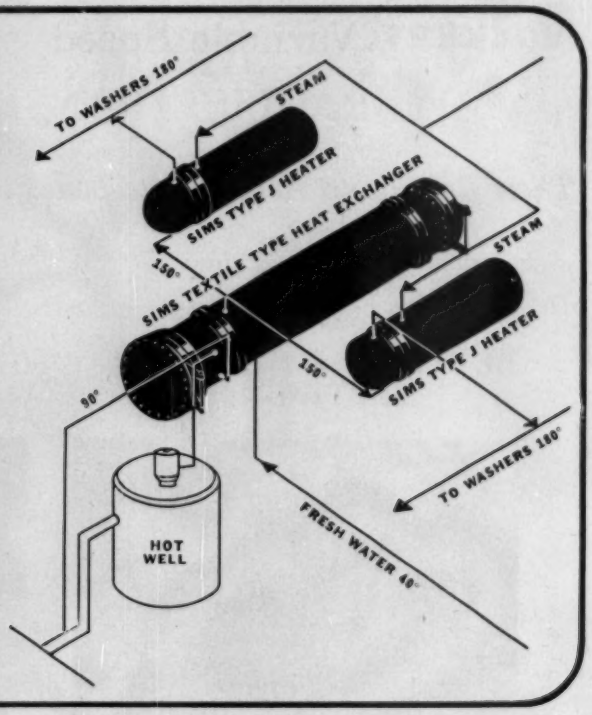

These 3 Finishing Plants Save Money with SIMS HEAT EXCHANGERS - - -

at Pepperell, Ala.

6 large Sims Textile type Heat Exchangers serve bleaching and dyeing ranges and mercerizer. Each waste water exchanger is connected to a Sims booster exchanger using steam to raise temperature of water. Typical of all, is the operation of one, on the dye range, fresh cold water introduced at 72°F. is raised to 136°F. The 6 Sims Exchangers were equivalent to an added 40,000 lbs./hr. boiler.

at Granitville, S.C.

2 very large Sims Textile type Heat Exchangers are fed from a hot waste water collecting tank. An average of 50,000 gallons per hour of incoming fresh water gains 42°. passing through the exchangers. These 2 Sims Exchangers are floor mounted and serve dyeing ranges and mercerizer to convert waste hot water into usable hot water.

at Clevedale, S.C.

One of 3 Sims Textile type Heat Exchangers serves a mercerizing department. About 250,000 gals. per day of waste water at 175 to 180°F. are passed through this exchanger. Incoming fresh water at 77°F. gained 35°F. at a flow of 172 gallons per minute. Savings on a 24 hour basis amounted to 83,062,500 B.T.U.'s. The 2 other Sims Exchangers operate on bleaching ranges.

Easy opening, swinging doors reveal the entire inside of a Sims Exchanger. Straight 1¼" tubes permit straight-thru hosing. Polished stainless steel tube plates with wide belled stainless steel or copper tubes and curved, removable baffles resist lint deposits.

It's a routine job to make sure a Sims Exchanger is bone clean. You can see it—there is nothing left to imagination—no return bends to contend with—no sealed system. Ask for Bulletin TE-3.

THE SIMS CO.

Erie, Pennsylvania

Manufacturers of Exhaust Gas Boilers • Storage Water Heaters • Heat Exchangers • Feed Water Heaters • Steam Separators

SIMS SINCE 1886

• Quenching Oil Coolers • Oil Heaters • Caustic Soda Recovery Equipment • Commercial type Instantaneous Water Heaters.

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Cut Your Costs up to 20%

with new Du Pont

"SOLO-MATIC"

Bleaching Program

PART I—

New "Solo-Matic" Process

—a single-stage continuous bleaching system. Easily controlled, it can cut bleaching costs up to 20%. Equal in every way to the performance of multi-stage systems . . . yet saves 50% in equipment.

PART II—

New J-Box

Operates at higher temperatures for more effective bleaching. Simplified design minimizes mechanical handling and wear on goods.

PART III—

Du Pont Technical Assistance

Including a complete confidential survey of your operation and recommendations based on these findings . . . assistance in the design, installation, operation and control of the "Solo-Matic" system in your bleachery.

Du Pont's "Solo-Matic" program is the result of many years' experience in the textile industry working closely with bleacheries and with equipment manufacturers. Du Pont does not make bleaching equipment for the "Solo-Matic" program but can put you in touch with manufacturers who produce equipment tailored to your needs.

* * *

If you would like to learn more about the "Solo-Matic" program—how it can help you cut costs and increase efficiency—get in touch with your Du Pont representative or send the coupon below.

DU PONT

PEROXIDES

ALBONE® hydrogen peroxide, 35% and 50%

PERDOX® sodium borate perhydrate

SOLOZONE® sodium peroxide

Sodium perborate tetrahydrate

DU PONT

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

E. I. du Pont de Nemours & Co. (Inc.)
Electrochemicals Department
Wilmington 98, Delaware

Please have my Representative call with full information on the "Solo-Matic" Bleaching Program.

Name_____ Title_____

Firm_____

Address_____

City_____ Zone____ State_____

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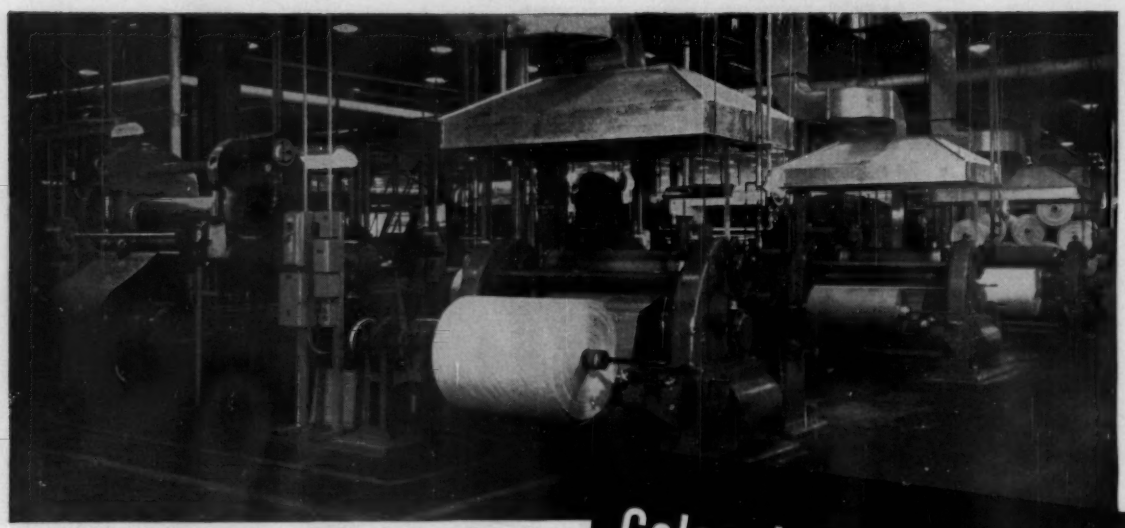
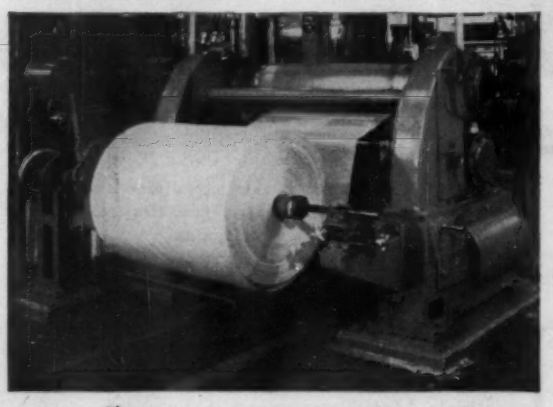
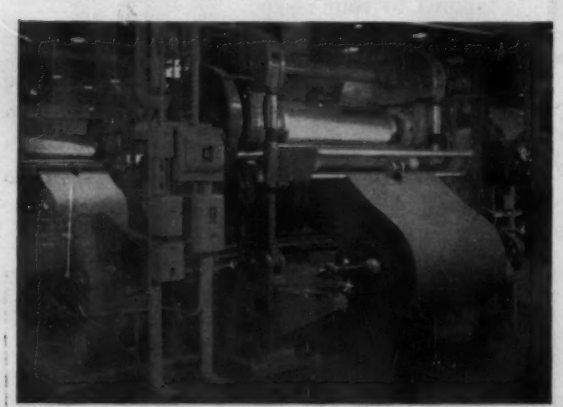


View of finishing operation at The Springs Cotton Mills, Grace Bleachery Division showing Appleton Machine Company 20 Ton Embossers and 50 Ton Schreiner Calenders.

Colonel Elliott Springs Chooses Appleton



One of three Appleton 20 Ton Embossers in use at The Springs Cotton Mills, Grace Bleachery Division.



One of three Appleton 50 Ton Schreiner Calenders specially adapted for everglaze finishes at Springs Cotton Mills, Grace Bleachery Division.

The uncommon elegance of Springmaid sheets can be attributed to Colonel Elliott Springs' shrewd judgment of textile machinery.

According to a trade journal article, the famous Springs Cotton Mills owner demands equipment that meets these requirements:

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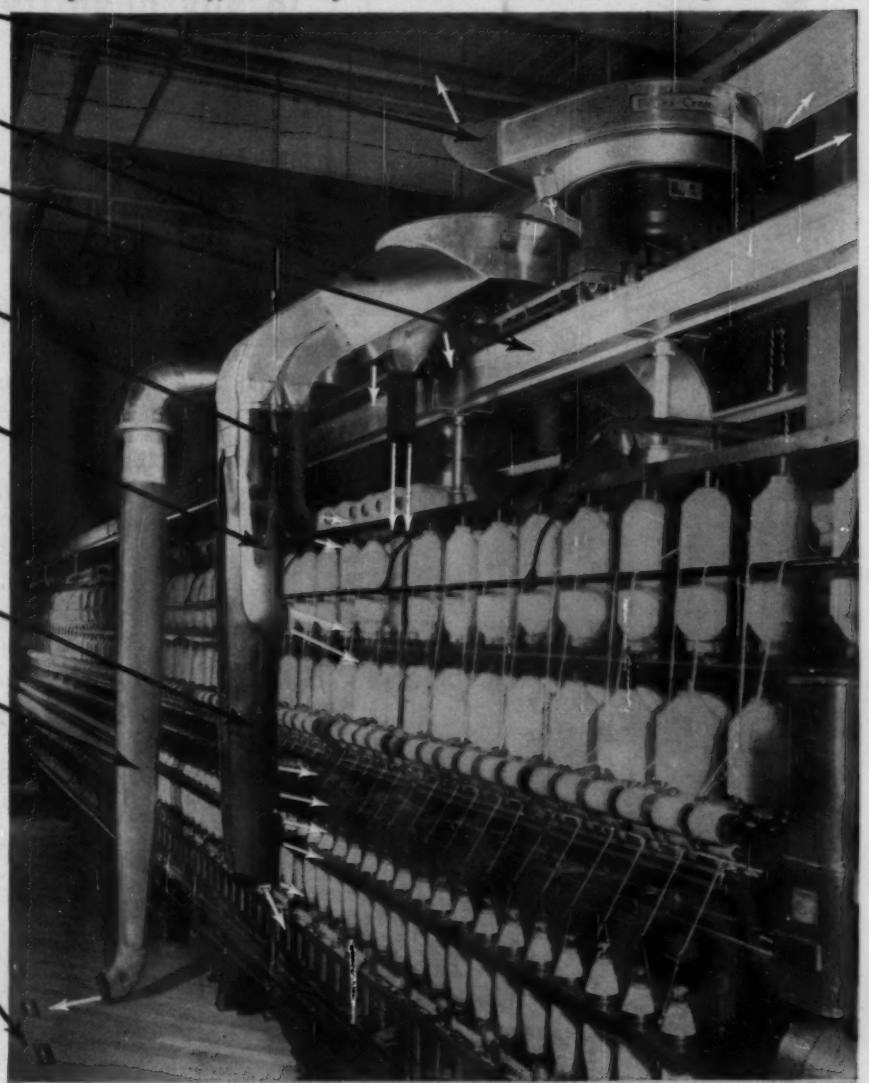

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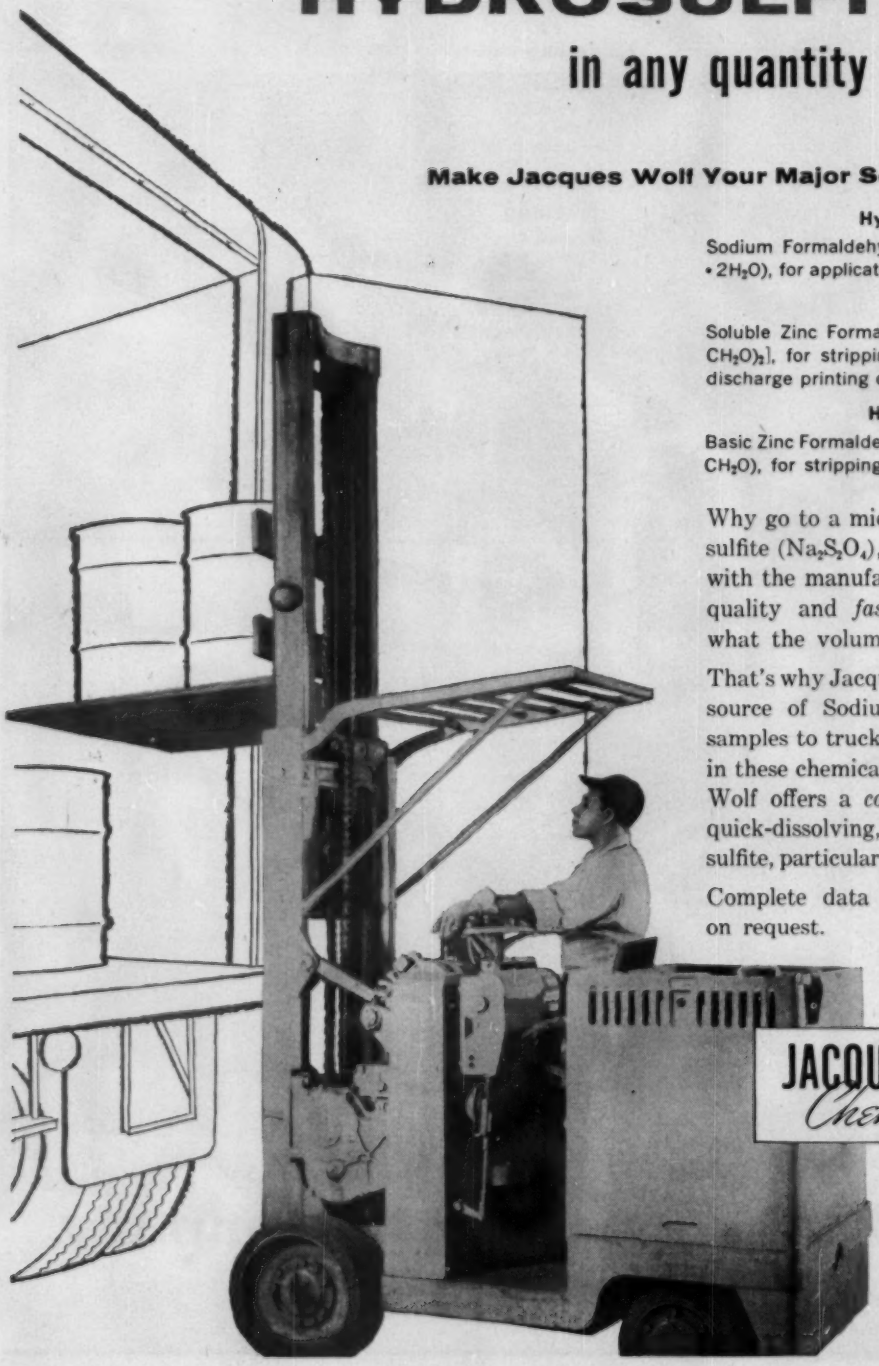

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Catalog No. 103
Bleaching ranges, Rangettes, Washers and Saturators. Illustrations, specifications and schematic drawings.

Bulletin No. 54
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Bulletin No. 44
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Catalog No. 849
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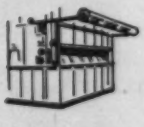
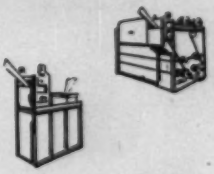


Tru-Shade Dye Beck



Bleaching Ranges and Rangettes

Tensitrol Washer

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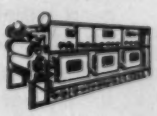

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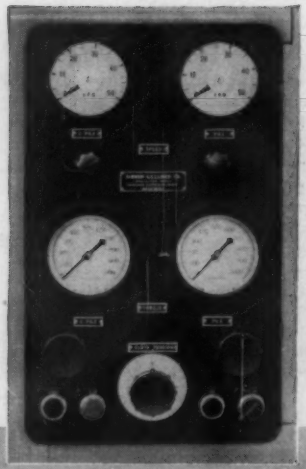

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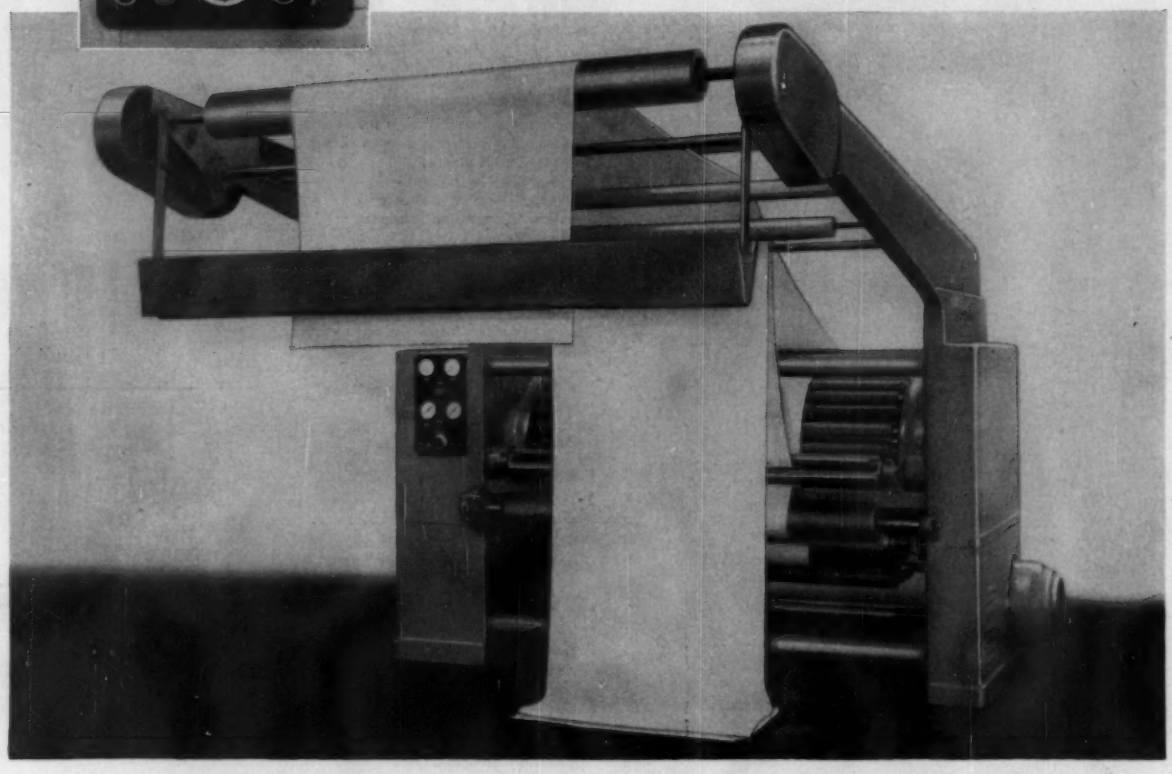

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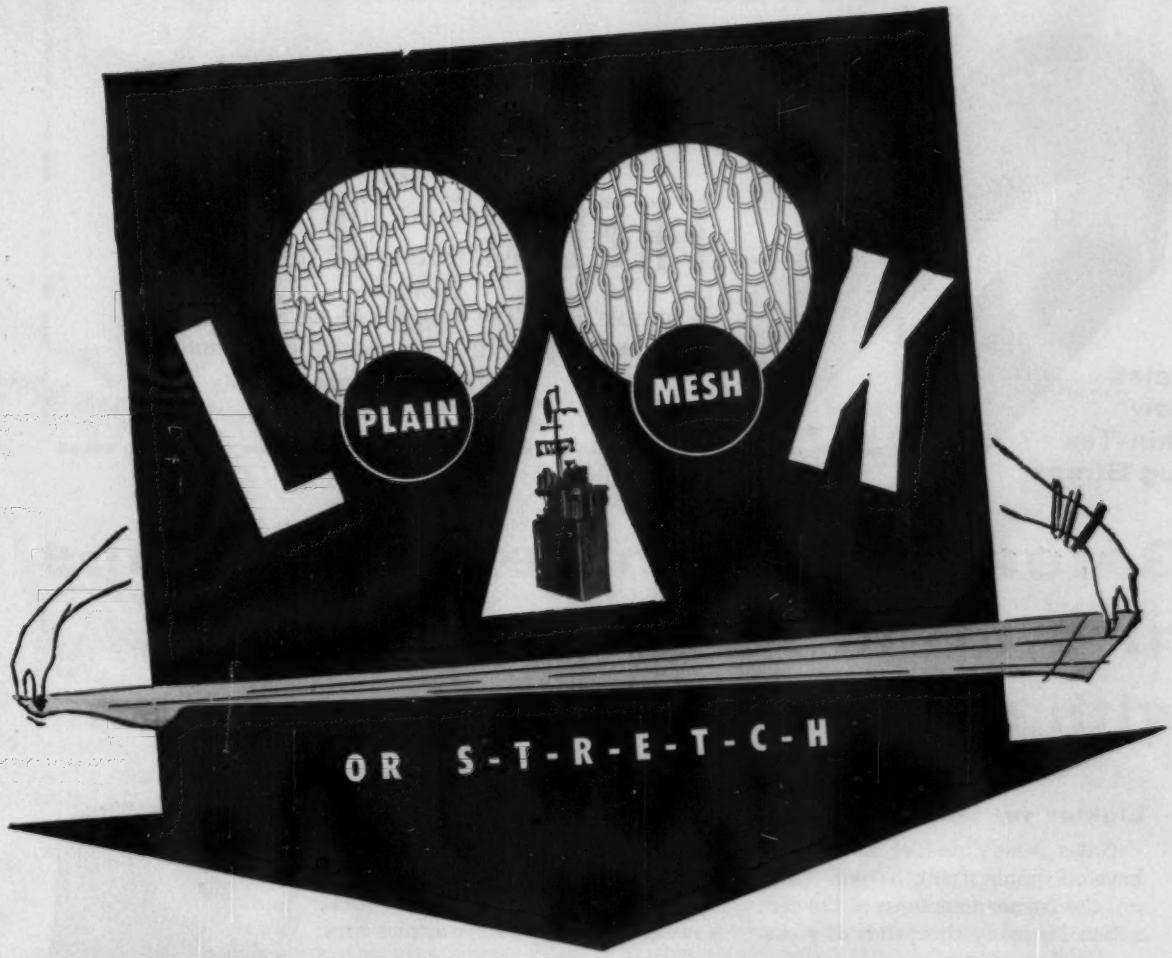

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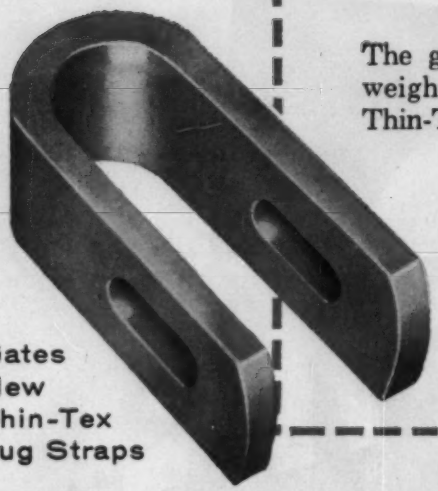

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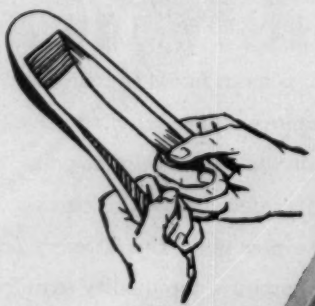

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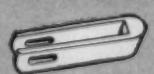

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Textile Business—a New Dimension

Last month in TEXTILE WORLD we started publication of a new editorial section called Textile Business. The second issue of the section appears this month on p. 17. Because this section is an important new development in textile publishing, we'd like to discuss it a little.

Many readers of this page will recall that at one time or another they have been asked in person or by mail exactly what they read in an issue of TEXTILE WORLD. In the publishing business that is called a readership study and is one of the important types of research done by publishing companies. Results of these studies are the most important guide editors use in determining what kind of information readers want.

This readership research, tabulated for several thousand readers in the textile industry, gives a very strong indication that there has been an important blank spot in textile publishing. Readers are keenly aware that things of vital interest to them in their jobs are happening outside of their mills—in Washington, New York, Tokyo, Geneva, Detroit, and elsewhere. They have the answer to the question "How's business?" in their own plants, but they also know that the answer to "Why is your business like that?" lies somewhere else.

Authority Is Missing

Until now, no publication has regularly and authoritatively digested all that is happening in textile business and selected and evaluated this information in the light of sound knowledge and long experience in the textile industry.

Occasionally some general-business newspaper or magazine will take a quick look at some phase of textile business and publish a startling article that says the whole textile industry is going to pot because it is not like the automobile or chemical industry. And there are both newspapers and magazines that do an excellent and authoritative job of covering spot news as it occurs.

But readership research shows that thousands of mill men feel a pressing need for a brief, well-organized picture of textile business that has more depth and breadth, more authority and less bias than has been available.

The purpose of TEXTILE WORLD's new Textile Business section is to fill that important need of alert mill men.

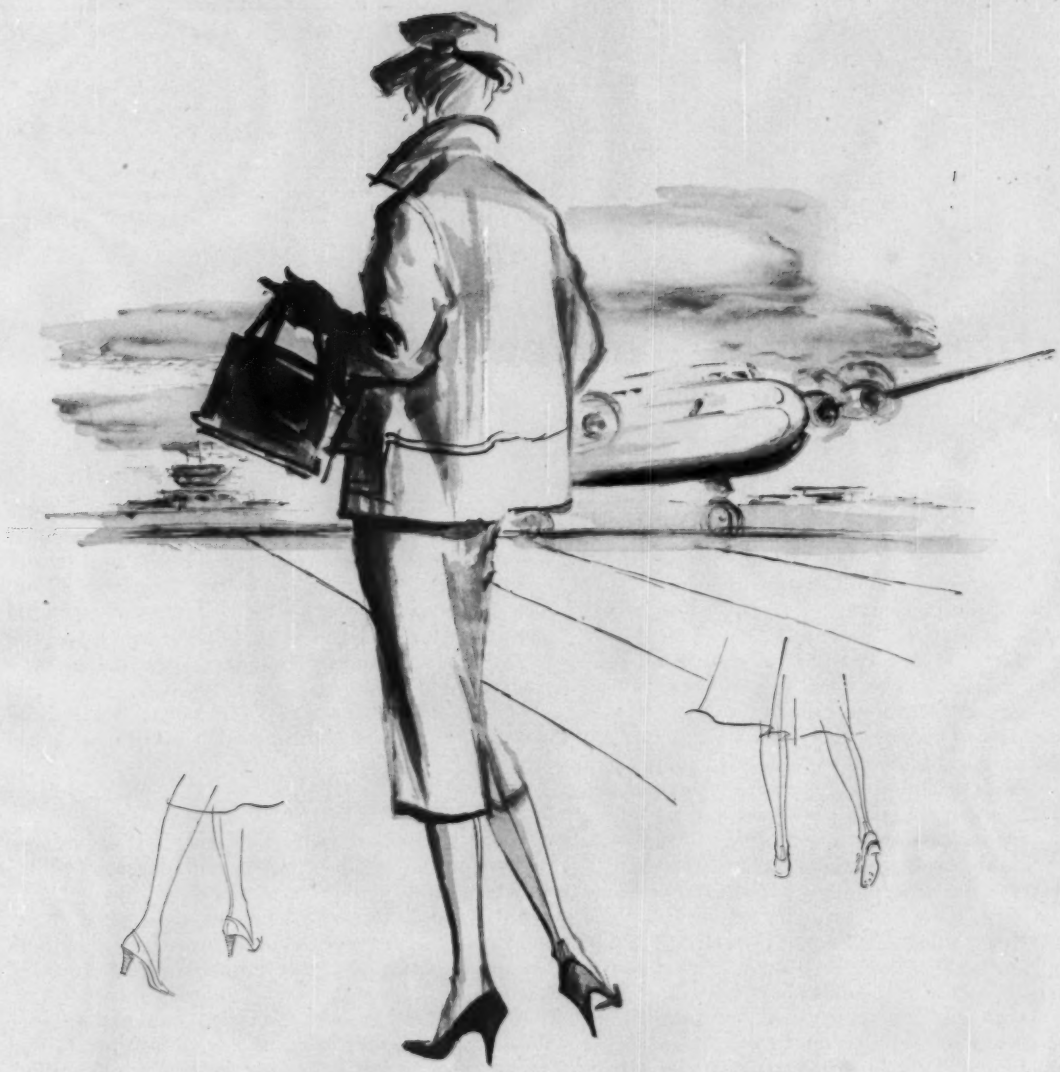
How This New Section Operates

To do an adequate job of covering textile business, we have on call, besides our own staff, dozens of skilled reporters and authoritative business analysts in McGraw-Hill bureaus throughout the United States and the rest of the world and many dozens of authorities in all phases of textile business and all types of textile mills.

Never before has so huge, efficient, and authoritative a collection of knowledge, skill, and judgment been concentrated on textile business for regular publication. And never before has the churning activity of textile business been distilled into eight pages of significant highlights.

Without question, it is the most important new development of the decade in textile publishing. No one can read it regularly without becoming more aware of and better informed on the forces at work in textile business. Nowhere else can a mill man get so quickly and easily the answer to the question, "Why is my business the way it is?"

J. H. Thomas



Nearly every competitive advantage starts with the machine

Study the technical superiorities and production economies of the *improved* "Reading 100". Watch it in action. Check its flexibility and smooth, high-speed operation. See the quality of its knitting. Then figure the arithmetic of this *improved* full-fashioned knitting machine and know what it can mean to you in higher quality and lower per-dozen costs.

The "READING 100"
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Textile World

Volume 107, No. 3. March, 1957

Special Report—Part 1

New Fibers and New Machines Make Better INDUSTRIAL FABRICS

Industrial fabrics run a close third to apparel and household fabrics as the nation's biggest textile market

New fibers and new machines are giving end users better fabrics at lower cost

In this report, TEXTILE WORLD shows how leading textile manufacturers are producing the fabrics

By **RICHARD B. PRESSLEY**, Associate Editor, TEXTILE WORLD

Approximately one-third of all fabrics produced in the United States are used by industry. Duck and automotive fabrics are the big-volume industrial fabrics.

Industrial-fabric markets are growing fast in spite of vinyls cutting into them at a rapid rate. But even with vinyls taking their cut, industrial-fabric production should increase 25% during the next five years.

On the following pages, Textile World gives a cross-sectional picture of what's happening in industrial fabrics today—(1) synthetic fibers are replacing cotton fibers in many applications or are combining with cotton fibers for better fabrics, and (2) new and more-automatic machines are being used with improved methods to further upgrade the fabrics for lower cost to the end user.

Rayon's Industrial Growth Is Fast

High-tenacity rayon has experienced a phenomenal growth. From an estimated 1- to 1½-million lbs. in 1954, this fiber skyrocketed to 4-million lbs. in 1956. By 1960, the figure should reach 12-million lbs. And many other synthetic fibers are moving up fast.

In the report on industrial fabrics in this issue, Textile World shows what leading textile manufacturers are doing to produce duck and fabrics for better automobiles. The manufacturers are Wellington Sears, J. P. Stevens, Georgia Duck, Spartan Mills, Firestone Textiles, Goodyear, Southern Weaving Mills, and several others.

Fabrics Are Made New Ways

Most tufting manufacturers aren't interested in developing industrial markets at present because they can sell all the carpets they can manufacture. But when competition becomes a little keener between tufters, many other tufted industrial fabrics will be made.

Nonwoven fabrics, of course, have been developed for many industrial uses. One of the most successful nonwoven products is made from a combination of synthetic fibers with other fibers, or synthetic fibers by themselves, for improved filter fabrics.

Nonwovens for rug backings may come soon. Other present nonwoven industrial uses are wiping cloths, impregnated dust cloths, insulating tape, gaskets of Orlon, and vinyl-coated side panels for automobiles.

Synthetics Have Many New Uses

Newer fibers being used in industrial fabrics are Dacron for ironer covers, nylon for body armor for the armed forces, nylon for fish nets, Teflon for filtration of beer, chemicals, and soap, and Teflon for narrow fabrics, laundry textiles, special conveyors and beltings, and other uses.

Possibly Dacron warps with nylon filling for better belting duck will be woven soon, but this development seems three to five years in the future.

Many New Advances Are Pending

Many other developments are pending besides the technical advances given in this report:

Dacron is replacing nylon in parachutes for jet planes.

Tufted carpets are taking the biggest bite of automobile floor covers. Tufted fabrics are also being developed for other industrial purposes.

Other new tufted-fabric uses are polishing heads for the automobile industry, wiping and waxing cloths, dusting cloths and mitts, covers for paint rollers, and tufted glass fibers for gloves to handle electronic parts as they come from ovens at 2,200° F.

Another Report Will Come Soon

Next month, several more articles on other industrial fabrics will be published. The report will discuss glass-fiber fabrics, fabrics for abrasives, circular-woven hose, slasher cloths, filters made on needle looms, woven papermaker's felts, woven dryer felts, knitted fabrics, and coated and laminated fabrics.

Manufacturers contributing to the report are Appleton Woolen Mills, Scapa Dryers, Troy Blanket Mills, Herculite Fabrics, Bates Fabrics, Sawyer-Tower, Aldan Rubber Co., Masland Duraleather Co., Carborundum Co., Whittier Mills, Albany Felt Co., and others.

Modern INDUSTRIAL TEXTILES Have Wide Applications

• Wellington Sears Co., Inc., has been making industrial fabrics since 1845, but its greatest growth has occurred since World War II. Progress is a result of modern diversified operations based on proved merchandising and manufacturing practices.

WELLINGTON SEARS CO., INC., merchandising subsidiary of West Point Mfg. Co., is the outlet for much of the nation's industrial fabrics. The first sales figures of West Point were available in 1910 and were a little over $2¾-million. Record sales were almost $138-million in 1951 and have been over $100-million each year since.

Wellington Sears' production of cotton ducks dates back to 1845. West Point recently celebrated its 75th anniversary as a weaver of cotton duck.

Medium-weight single-filled cotton duck was the first product manufactured by the West Point Co. And of the approximately 63-million linear yards of cotton duck produced in the U. S. during a recent three-month period, almost 40% was this same type of duck.

Company Is a Big Producer

Today, as throughout its history, West Point is primarily a producer of industrial fabrics. Its products are used in mines, refineries, factories, oil fields, arsenals, and shipyards. Airplane and balloon cloth, typewriter-ribbon fabrics, sateens, drills, and twills are a few of the fabrics produced. A more-complete list is given in the accompanying table. Many varieties of fabrics for the needs of specialized industry are made.

The greatest volume of end uses of duck is conveyor belting, hose, laminations, chafers, and filters for ceramics.

In contrast with many textile companies, West Point has experienced its greatest growth since World War II. It has added to its productive capacity, and its operations have become more diversified. More than 4,000 employees have been added to its payroll, bringing the total to 12,000.

The company is alert to the scientific progress of the present. And with its background of weaving industrial fabrics, Wellington Sears passes along some of the ideas that have made the company so successful.

The weaver of industrial fabrics is responsible for selecting or creating the right fabric for each specific end use. To develop new markets and hold the old, the manufacturer must: (1) know the fabric capabilities needed and (2) thoroughly understand the application and other materials involved such as natural or synthetic rubber, vinyl, polyethylene, phenolic or other resins, asphalt, pyroxylin, linseed oil, abrasive grit, and others.

Methods of Successful Operation

A knowledge of the methods of using these substances is also necessary: saturation or impregnation, frictioning, fabric combining, spread or calender coating, film-to-fabric laminating, electronic heat sealing, or high- or low-pressure plastic laminating.

To operate successfully, the industrial-fabric producer must cooperate in small-order experiments to develop new fabrics. Even after a fabric has been successfully developed, there aren't always big-volume sales. In addition, as in many types of fabrics, there isn't an opportunity for well-timed sales because an industrial fabric is usually proved only after years of use.

Choosing the Fabrics for End Uses

Yarn construction for industrial fabrics depends on the choice of fiber or fiber combination: staple or filament, staple length or denier where applicable, size and weight of yarn, amount of twist, number of plies, and several other factors.

Industrial spun yarns are usually carded, but combed yarns are needed for certain fine high-count fabrics. Both fiber properties and frictional hold of the twist affect yarn tensile strength. Spun yarns afford good bulking and flexibility because individual fibers can shift within the yarn structure under flexion or distortion to minimize yarn wear. Spun yarns also absorb and adhere well with other materials.

Filament yarns generally have greater tensile strength in relation to bulk and weight than spun yarns. Although filament yarns do not absorb or adhere as well as spun yarns, these problems can often be met by regulating yarn twist, opening up the weave to permit strike-through, predipping, or by other means.

Combining both types of yarn, as with a filament warp and spun filling, often gains the advantages of both. Yarns of both types can be twisted together for extra strength into plied yarns, which in turn can be twisted into cabled yarns.

There Are Three Basic Weaves

Fabric construction starts with three basic weaves. Arbitrary opinion sometimes favors one weave against another, but the weave can be judged only in relation to fiber, yarn, cloth count, and other factors. The three basic weaves are:

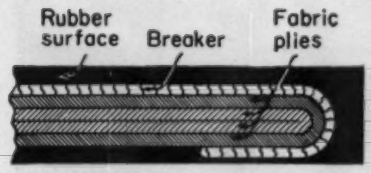
1. Plain weave. In a tight weave, it can provide the most yarn interlacings per square inch. This factor results in maximum cover and impermeability. Yet it can also be opened up to any desired degree.

2. Twill weave. It is more porous than an equivalent plain weave.

3. Satin weave. It provides porosity, good cover, and a smooth surface for vinyl coating.

All variations of industrial fabrics are derived from these three basic weaves. One example is a tear-resistant basket weave used for balloon cloth. Another further refinement is a rip-stop weave that provides basket stops with tight construction between stops.

Recently the basket principle inspired a fabric of low-twist filament-nylon yarn in which individual fila-



CONVEYOR BELT, shown in cross section, is sheathed in a breaker fabric. Duck fabric is built up in plies to form the desired thickness.

ments lie flat and parallel, thereby contributing exceptional adhesion and tear resistance for vinyl or neoprene coating.

Leno is a plain-weave variation; it is open and net-like, with warp ends interlocked to prevent slippage. It is often used for rubber reinforcement.

Terry weave, familiar in towels and robes, is also used in industrial fabrics. It comprises both ground warp and pile warp for a looped-yarn surface.

A principal twill-weave variation is broken twill with the twill line regularly reversed. It is widely used for coating.

Base fabrics, however, are not always woven. Knitkote, for example, is a Wellington Sears knitted fabric with high elasticity and shape retention developed especially for coating. Then there are nonwoven fabrics, of course, that are of special interest for coating and laminating.

Construction Determines End Uses

In woven fabrics, count is a vital construction factor because it affects absorbency, adhesion, permeability, strength, weight, bulk, flexibility, and other characteristics. But gray-fabric count may be misleading because of dimensional changes in finishing, tension, and other factors in subsequent processing.

Industrial fabrics are often used gray, yet appearance sometimes requires bleaching or dyeing. Scouring is sometimes used to remove oils, waxes, or sizing. Dimensional stability demands preshrinking of cottons and heat-setting of synthetics such as nylon, although heat-setting is a relative term based on the original stabilization temperature.

Other fabric finishes include calendering to produce a smoother surface and thinner gauge, napping to raise a flannel-like pile on one or both sides, singeing to remove whiskery surface fibers, predipping for rubber applications, and other processes.

From fiber to finish, fabric is designed for performance. When a fabric is used industrially with other materials, strength is usually the primary consideration. Original fabric strength, in itself, is not always the determining factor. Its contribution to finished-product properties, however, can be decisive.

Strength, moreover, takes many forms. Tensile strength is sometimes overemphasized in importance and ranks with many other kinds of strength: impact, shear, flex, tear, burst, and stitch. All of these strength factors affect the end-product performance.

To be used with other substances, fabrics must bond or adhere well. They must be physically compatible to the material and its end use with respect to flexibility or rigidity, dimensional strength or elasticity, and weight-bulk-strength ratio.

Both fiber and sizing, or other finishing material, must be chemically compatible; and in some instances there must be resistance to special chemical, electrical, thermal, or humidity conditions.

Rubber Industry Is a Big User

The rubber industry uses about 1 lb. of textiles for every 3 lbs. of rubber consumed. Mechanical rubber goods such as industrial belting and hose are among the important rubber products that depend on textiles for reinforcement. In this field, the first step is rubber saturation, or impregnation, of the fabric in one of several ways to prepare the fabric for the next step.

Conveyor belts may be light or heavy, long or short, wide or narrow, and may be used as horizontal, inclined, or elevator belts. Each requires special design; but the typical belt is built on a carcass of rubberized fabric layers that are often sheathed in a breaker fabric, as shown in the accompanying sketch, to distribute shock and assist bonding. The whole structure is then covered with rubber and vulcanized.

Cotton belt ducks woven to long-accepted and proved specifications, designed for longitudinal strength, good adhesion and bulk, and sound economy are ordinarily used for carcasses.

Newer Fibers Gain in Favor

But newer fabrics of high-tenacity filament rayon, particularly in its latest high-strength form, enable belt manufactures to achieve exceptional strength, light weight, low gauge, and good troughing qualities, which are important for conveyors.

Cotton-nylon and cotton-rayon combinations afford similar benefits by combining strength with flexibility, good adhesion, and bulk. Rayon-nylon fabrics are also gaining in use.

Industrial wrapped rubber hose is an important end use of broad woven fabric. This fabric is rubberized, formed on a mandrel, and vulcanized to form hose. To be used in wrapped hose, a fabric must be strong, soft, open, and balanced. Plied-yarn construction affords maximum impregnation and flexibility.

Steam hose utilize high-tenacity rayon's properties for minimum-burst hazard and easy handling. Rubberized spun nylon is used inside articulated-metal conveyor hose for bulk materials handling, which is a growing industrial use, and other applications.

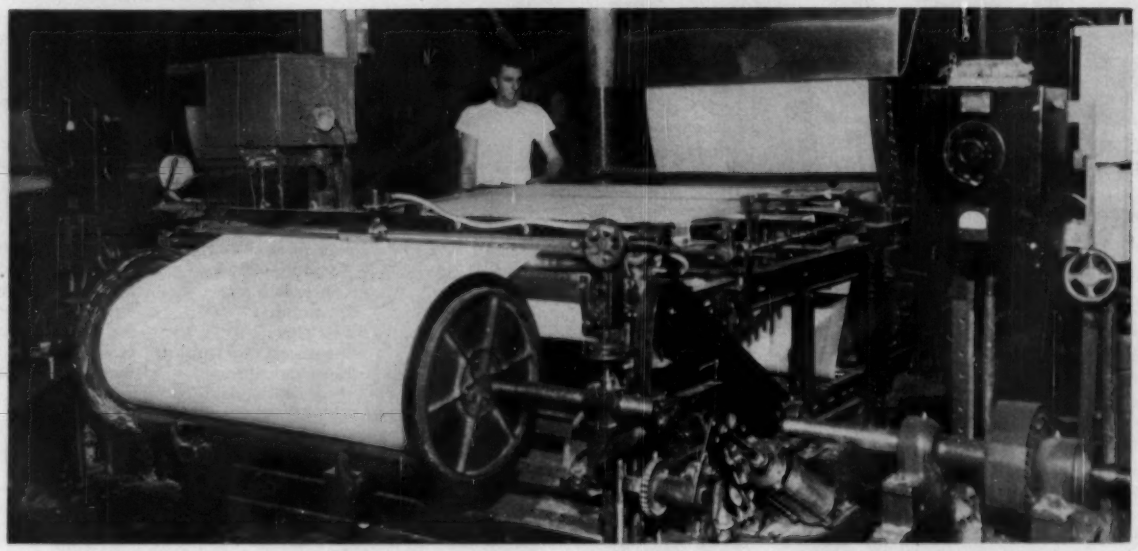
Typical Wellington Sears industrial fabrics

Acetate fabric	Jean
Acrylic fabric	Laundry duck
Airplane cloth	Laundry sheeting
Army duck	Leno fabric
Balloon cloth	Narrow duck
Belting duck	Naught duck
Broken twill	Nonwoven fabric
Chafer fabric	Nylon fabric
Chain cloth	Polyester fabric
Double-filling duck	Pottery duck
Drill	Rayon fabric
Enameling duck	Sail duck
Filter duck	Saran fabric
Filter twill	Sateen
Gear duck	Shelter tent duck
Glass fabric	Shoe duck
Harvester duck	Single-filling duck
Headlining	Twill
Hose duck	Typewriter-ribbon fabric
Industrial lawn	Wagon-cover duck
Industrial sheeting	Wide duck

Typical end uses of industrial fabrics

Abrasives	Laundry roll covers
Advertising specialties	Liquid filters
Anode bags	Liners and cure wraps
Automobile seat covers	Military equipment
Automobile headlining	Movie screens
Awnings and canopies	Outdoor furniture
Bags	Packing and gasketing
Boat and hatch covers	Plastic laminates
Book bindings	Pneumatic tires
Buffing wheels	Press cloths
Business-machine ribbons	Printers' blankets
Coated upholstery	Railroad-tie pads
Convertible tops	Rubber footwear
Diaphragms	Rubberized fabrics
Dust filters	Safety equipment
Handbags and luggage	Sails
Harvester aprons	Surgical supplies
Hose and belting	Tarpaulins
Inflatable products	Tents
Insulation	Truck covers
Laundry nets	Water-softening bags

MODERN INDUSTRIAL FABRICS are used in many industries. In most instances, the fabrics are processed further by other manufacturers.



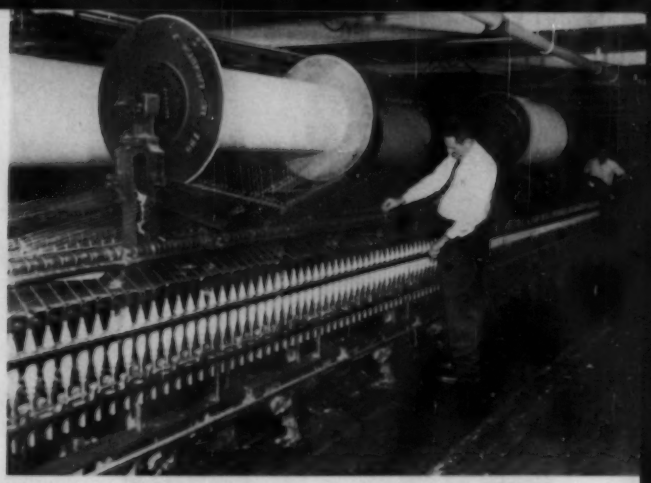
SLASHERS operate at an average speed of 55 yds. per min. Westinghouse magnetic-amplifier drives and Brown instruments control the yarn.

For WIDE INDUSTRIAL FABRICS— The Trend Is to Automatic Machines

• Spartan Mills' Beaumont Div. is weaving duck and fabrics for coating and laminating. The mill is constantly adding new automatic machines to make the heavy fabrics.

DRAPER XP LOOMS are used to weave wide industrial fabrics. One group of 60-in.-wide looms has Diehl drives and operates at 153 ppm.

INSPECTING, burling, and grading of most industrial fabrics are done at one time. Both sides of coated fabrics are inspected. Each style is checked by a handbook.



FILLING TWISTERS twist yarn from section beams directly to loom bobbins. Beaumont converted conventional spinning frames to do this job.

HEAVY DUCK WEAVING has always been something of a hand operation. Filling is changed in the loom shuttle by hand from filling cops wound semiautomatically.

The heaviest duck is still necessarily a hand operation. But Beaumont Div., Spartan Mills, Spartanburg, S. C., is weaving duck on automatic looms and is constantly modernizing its plant with the latest yarn-producing and weaving machinery to produce duck up to No. 6 in weight.

All machinery installed will also make yarns and weave the lightest sheeting. And all machinery is automatic, a trend that's different from that of many duck-weaving mills.

Beaumont is one of the largest weavers of wide industrial fabrics. At this writing, more than half of its total of over 1,100 wide looms are weaving flat duck and fabrics for coating and laminating.

Duck Is the Big Fabric

Although much of its present production of over 600,000 yds. of cloth per week is on consumer goods, the mill is basically a producer of industrial fabrics. Its production in the past has been wholly on duck fabrics for tenting, tarpaulins and similar end uses for the armed forces. During World War II, Beaumont is said to have furnished 16% of the total duck used by the armed forces.

The warp for the flat duck woven at present is, of course, not twisted. Part of the filling is single yarn, and part is plied.

The plied yarn is twisted from section beams of yarn directly to loom bobbins on twister frames converted from conventional spinning frames. The beams are 30 ins. in diameter and contain an average of 700 lbs. of yarn. There are two beams per twister. An example of one yarn number twisted is 14/2.

Rings are 1⅝-in. dia., and the gauge is 2¾ ins. Each frame has 272 spindles. Spindle speed is 6,400 rpm. The loom bobbins are 8¾ ins. long.

Filling Winding Is Automatic

Single filling is wound on Abbott and Schlafhorst winders. The filling is 8s to 23s and is wound from 4-lb. cones to 8¾-in. loom bobbins.

Most looms used to weave the wider industrial fabrics are Draper XP models. But X-2 looms are also used when orders demand it.

The width and speed of the XP looms are: 40 ins. wide, 164 ppm; 54 ins. wide, 156 ppm; 60 ins. wide, 153 ppm; and 64 ins. wide, 148 ppm. All looms run 8¾-in. filling bobbins.

Many Styles Are Woven

At present, 456 styles of fabric are in the active file in the weave-room office. All fabrics woven at present are cotton, but samples of synthetic fibers are also woven.

Flat duck is woven with two ends in a single heddle eye. Typical flat-duck constructions are: (1) plain weave, 78x30, 50 ins. wide, 2.02 yds. per lb., 18s warp, and 9s filling; and (2) plain weave, 84x28, 38 ins. wide, 2.00 yds. per lb., 14s warp, and 14/2 filling.

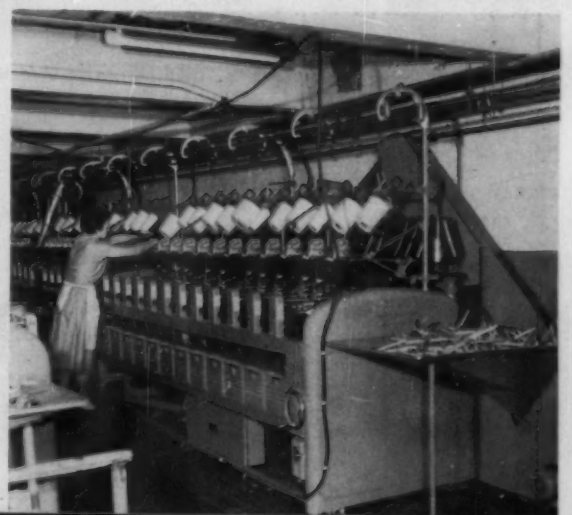
An example of laminating-fabric construction is: plain weave, 64x64, 60 ins. wide, 2.10 yds. per lb., 21.5s warp, and 23s filling.

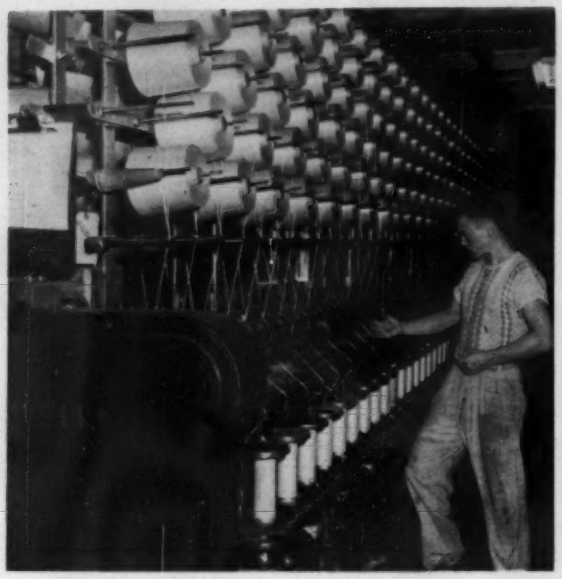
Two common coated-fabric examples are: (1) broken-twill weave, 76x52, 54 ins. wide, 1.14 yds. per lb., 14s warp, and 8s filling; and (2) sateen weave, 96x64, 1.21 yds. per lb., 16s warp, and 14s filling.

Most cloth is graded, burled, and inspected on machines in the cloth room in a single operation, and most industrial fabrics are packaged and shipped in rolls.

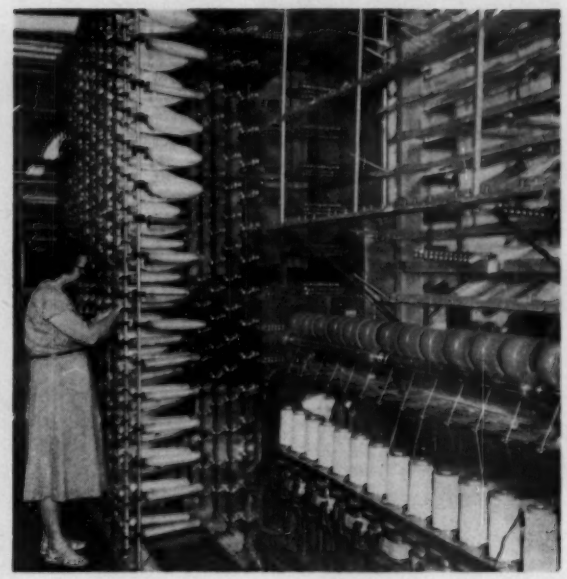
As in all other departments of the mill, machines are as near automatic as possible. All cloth is placed on the inspecting machines by men. Women graders have only to thread the cloth around the machine at a new roll of cloth. To remove a roll of cloth, a grader simply pushes it off onto a conveyor belt, where it is removed from the area.

NEWEST FILLING WINDER is a Schlafhorst model with 60 spindles. Spindle speed is 11,000 rpm. Cones weigh 4 lbs., and bobbins are 8¾ ins. long.





FILAMENT-NYLON FILLING is twisted on frames formerly used to twist cotton yarn. Nylon travelers are used.



TWISTING NYLON YARN from run-out pieces on a warper creel is an experiment on a cotton twister frame.

Newer Synthetic Fibers Make Stronger DUCK FABRICS

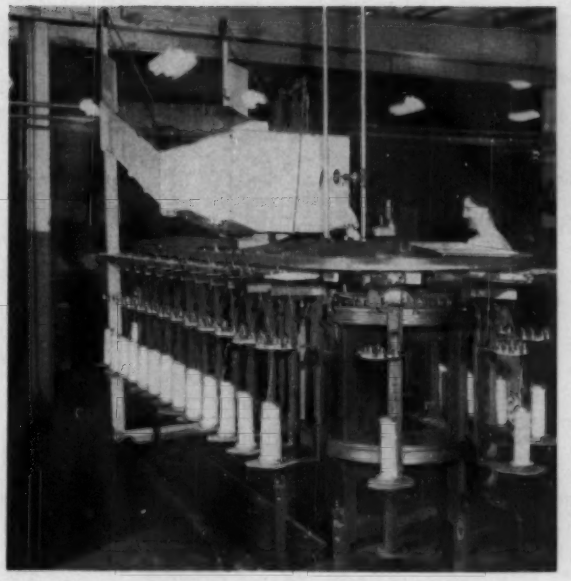
• In 1950, every spindle and loom in this duck mill was running cotton. Today, many woven fabrics have synthetic fibers in either the warp or filling. The synthetic fibers afford many desirable physical characteristics, but not all of the physical properties are desirable.

By **CHARLES R. BRADFORD,** Assistant Manager, Georgia Duck & Cordage Mill, Scottdale, Ga.

THE HEAVY DUCK FABRICS manufactured at Georgia Duck & Cordage Mill are used in conveyor and transmission belting and in heavy industrial hose. During the past few years, there has been a steadily growing interest in the application of synthetic fibers, both staple and filament, in this segment of the mechanical-goods field.

Programs of cooperative evaluation, development, and promotion conducted by textile manufacturers, synthetic-fiber producers, and the rubber companies have pointed to economies in costs and improved product performance when physical properties of specific synthetic fibers are skillfully engineered into basic fabrics to replace cotton yarn.

This intensive work, in which we have had a significant part, has resulted in the conversion of a major portion of our production to fabrics



LOOM BOBBINS of nylon and rayon filling are wound on automatic winders also used for cotton.

DRAPER XP LOOMS transfer rayon and nylon filling automatically on fabrics up to 29 oz. per sq. yd.

containing part- or all-synthetic fibers.

New Fibers Improve Fabrics

Comparisons of general characteristics of some of the new fabrics with those of long-accepted cotton styles reflect many desirable improvements in cost and mechanical properties. For example, fabrics made with certain filament yarns such as the newer high-tenacity filament-viscose-rayon materials afford much greater strength per unit of weight and per dollar.

Improved stretch characteristics, flex life, resistance to heat, acids, moisture, impact, and other abnormal conditions encountered in product use may be imparted to fabrics through the selected use of synthetic fibers with these characteristics.

But rubber manufacturers who use these fabrics have faced many new problems in manufacturing and promotion in making available in their products this increased performance per dollar. Among those most frequently discussed with us are:

Filament Fabrics Must Be Treated

Most fabrics are covered with rubber and frictioned or calendered before they are incorporated into belting or hose. Rubber usually sticks well to spun yarns of cotton or synthetic origin but will not adhere satisfactorily for most applications to filament yarns.

Pretreatment of such fabrics where the major part of the exposed surface is filament yarn is necessary. Such treatment is expensive and time consuming and can result in abnormal distortion of fabric characteristics unless it's carefully controlled. Fabric engineering is complicated by the alteration in characteristics during the treatment process.

Synthetic Fibers Are Thinner

Synthetic fibers generally afford much greater tensile strength per unit of cross-sectional area than conventional cotton yarns. Fabrics incorporating a major percentage of synthetic materials, particularly filament yarns, are usually much thinner per unit of strength than the equivalent in cotton constructions.

This thinness is translated to the end product and results in thinner belts and hose walls. Long-established basic concepts of the minimum thicknesses that can be tolerated in the face of given performance requirements must be reconsidered and revised by end-product engineers.

Synthetics React Differently

Not all of the physical properties of certain synthetics are mechanically desirable in specific products. Maintaining sufficient fastener strengths in belts made with filament yarns, particularly where metal belt fasteners are used, have posed engineering problems.

Low wet strength of certain synthetic fibers is a factor that had to be considered for many applications; some filament yarns with desirable low-stretch characteristics have shown brittleness that reduces flex life; other problems such as these have had to be overcome.

The evidence of extensive work in the solution of these and many other new problems in manufacturing and in sales promotion is clearly seen, but rubber manufacturers report that many questions are as yet unanswered.

High-Tenacity Yarns Gain in Use

High-tenacity filament-rayon fabrics, with filament-rayon or filament-nylon filling, have made great inroads in the very-high-strength belting field. In this range, where belting engineers have long been restricted by relatively low-tensile strengths that could be engineered with cotton fabrics in the

Fabric No.	Oz. per sq. yd.	Strength in lbs. Modified-raveled-strip break test	Gauge in ins.
1	24.0-oz. cotton	310 lbs warp 200 lbs. filling	0.064
2	24.0-oz. high-tenacity spun-rayon warp and filling	340 lbs. warp 230 lbs. filling	0.060
3	23.0-oz. cotton warp, filament-rayon filling	365 lbs. warp 300 lbs. filling	0.064
4	29.1-oz. cotton warp, filament-nylon filling	365 lbs. warp 300 lbs. filling	0.058
5	21.1-oz. Type 272 Super Cordura rayon warp, cotton filling	500 lbs. warp 260 lbs. filling	0.055

These fabrics generally cost about the same per linear yard.

RAYON WARP with cotton filling (No. 5) is lighter and stronger than cotton (No. 1) and costs about the same.

maximum allowable thickness of a belt, these synthetic fabrics have provided a real answer.

In our mill, filament yarns are twisted, warped, quilled, and woven into fabrics for this field on conventional cotton equipment on which only slight mechanical modifications have been made.

Belting fabrics made with conventional cotton warps but with filament-rayon or nylon filling in place of the regular cotton yarns are being used widely today. Reduced warp crimps in such constructions, made possible by the use of smaller-diameter filling yarns, result in higher yields of warp strength for given cotton yarns.

Synthetics Improve Troughability

Belt manufacturers report improved troughability in finished belts, which result from increased transverse flexibility in these fabrics, and the belts work better around pulleys. Nylon filling is said to improve impact resistance. The surface of the fabric is almost entirely cotton, and there is no rubber-friction problem in most applications. The reduction in thickness from conventional cotton constructions is of relatively small proportion.

Small-diameter, smooth, relatively elastic, synthetic filament yarns in filling have made it possible for us to weave many of the cotton-synthetic filament filling styles on lighter looms. Most filling is wound on automatic filling winders, where more-uniform tension control is offered than with cotton filling-winding processes for heavy cotton-duck looms.

Automatic filling transfers in weaving improve production rates. Positive let-off and take-up mechanisms on newer looms afford more-uniform cloth quality.

Spun-Rayon Fabrics in Hose

Fabrics made of high-tenacity and extra-strength viscose-rayon staple yarns are being used in appreciable volume, particularly in wrapped-hose applications. Manufacturers report better flexibility and other improved performance factors in finished products. Extra-strength staple affords a significant increase in strength of fabric per dollar of cost, and such materials can generally be used without costly pretreatment.

We manufacture such spun-viscose-rayon yarns usually from 1⅛-in. 1.5-den. bright regular material through our regular cotton-yarn-manufacturing equipment. Minor changes are required in the machines in the card room where waste is controlled, and roll settings in all drafting systems have to be modified. Spun-rayon yarns are then wound, twisted, and woven following procedures long established for conventional cotton materials.

Synthetic-Cotton Mixtures

Filament-warp and cotton-filling fabrics hold promise of large-scale production. Fabrics manufactured with an inexpensive source of warp strength from filament synthetic warp yarns stuffed with large-diameter cotton filling yarns are being extensively evaluated now. Many constructions offer much greater warp tensile strength per dollar, and yet the exposure of cotton yarn on the surface of the fabric affords a surface for rubber adhesion. Many rubber manufacturers report preliminary satisfactory results without pretreatment of the fabric.

The heavy cotton filling yarns add body to the fabric, giving it dimensional stability superior to that of 100% filament fabrics of similar strength; and the thickness is far greater than that obtained in all-filament constructions. It appears that further economies that might result from the substitution of filament synthetic yarns for the cotton filling in these styles might be more than offset by the cost of treating such materials.

If the industry moves from cotton-filament synthetic filling styles to this principle, it may be necessary to reverse a part of our manufacturing trend toward lighter looms. This situation necessitates our maintaining a flexible weaving potential at this time.

All-Synthetic Constructions

All-synthetic fabric constructions may be accepted. Many capable and informed technical people believe that synthetic fibers afford such a preponderance of desirable physical characteristics for application in this field that fabrics of 100% synthetic origin will eventually replace all-cotton materials. There are certain well-established facts today that support this prediction, but many practical problems in fabric manufacture and in application in rubber-manufacturing processes remain to be solved.

Automobile Manufacturers Switch to NYLON-CORD TIRES

• With nylon-cord tires becoming cheaper with larger volumes used, some automobile manufacturers are using them exclusively on their best models, and further price reductions in nylon tires may pull in more car owners

THE MOST IMPORTANT PRICE INFLUENCE in tires for 1957 will be competition between rayon and nylon.

From 1953 to 1957, nylon tire-cord production increased over 200% while over-all tire-cord production decreased 10%. Rayon tire-cord production dropped 20%, and cotton dwindled to less than 2% of the total market.

In 1956, nylon tires appeared on several new cars. Chrysler Corp. has been the most active automobile manufacturer in equipping its new cars with nylon tires. Two models of cars of the Chrysler Div. were equipped with nylon-cord tires as standard equipment in 1956.

Following Chrysler's decision to use nylon tires on the two models of cars, a survey of Chrysler dealers in 75 cities of the nation was made by Dun & Bradstreet, Inc.

Car Dealers Like Nylon

Results of the survey show that 82% of the dealers say: "Nylon-cord tires are helpful as a selling feature"; 88% of the dealers believe "the tires offer a selling advantage."

For performance features, in addition to selling advantages, 78% say "nylon tires have definite advantages: (1) longer life, (2) cooler running, and (3) greater protection against blowouts."

The acceptance of nylon tires has been spectacular. Today, all major American air lines equip their planes 100% with nylon tires, even for lighter planes. The nation's truck-tire manufacturers have 155 brands in their lines.

In the summer of 1953, three brands of nylon tires were available to the public. One year later, there were 27 different brands of nylon passenger tires being advertised and sold.

In 1955, there were 39 brands of nylon tires; today, there are 241 brands—an increase of more than 500%.

At present, 17 rubber companies are producing tires. The number of brands of nylon tires exceeds the number of rubber companies because certain companies make several lines of special-brand tires.

Nylon Increases in Volume

The volume of nylon used in tires gives another vivid demonstration of the use of nylon. In 1951, approximately 4-million lbs. of nylon went into tire cords. Consumption jumped to approximately 18-million lbs. in 1953, and approximately 30-million in 1954; and in 1955, 50-million lbs. of nylon was used.

Several reasons that nylon has increased in use so rapidly are:

1. It's strong. Lighter tires that run cooler are possible.
2. It has great resistance to bruises and impacts. It all but eliminates the possibility of impact failure and blowouts from bruises.
3. It has heat resistance far beyond the temperatures normally encountered in a tire.
4. Nylon retains high strength even when moisture is present. If water seeps into cuts in a tire, the cord will not rot.
5. Where service is severe, nylon tires offer safety and economy. People who frequently travel long distances at high speed—police officers, for instance—are insisting on nylon tires.

Bad Features Are Eliminated

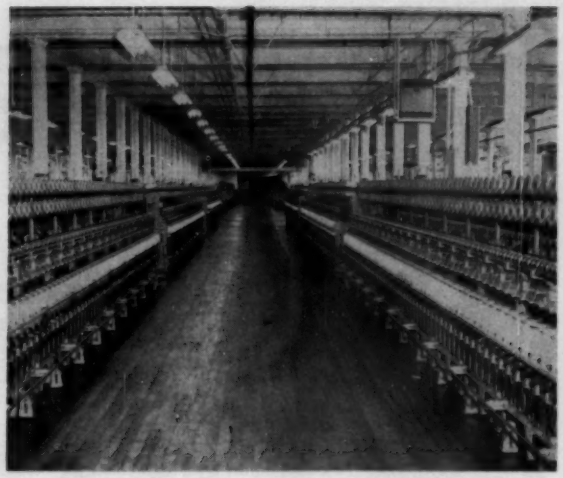
Objectionable features of early nylon tires, such as growth, have been all but eliminated by new stretching techniques developed during the past two years. This treatment has also reduced the amount of nylon needed in a tire, thereby reducing the cost per tire.

But tire distributors for several rubber companies will tell you that any fabric used in today's tires is better than the tread; the tread wears out long before the fabric is damaged.

Therefore, with their customer's interest at heart, they don't push nylon-cord tires. They'll tell you rayon is good enough for average drivers, and that there're a lot of drivers left who obey most speed laws.

ALL-NYLON Super-Cushion tire, made of Goodyear Tire & Rubber Co.'s new 3-T cord, was run 100 mph. for 5 mins. in a laboratory and fast-braked until the outside temperature fried an egg—yet the cord survived the heat.

PLY TWISTING is the first operation in tire-cord manufacturing at Firestone.



CABLE TWISTING follows ply twisting and respooling. Two ends are twisted together.

New Processes Improve TIRE-CORD FABRICS

• Firestone Textiles, Gastonia, N. C., is running full blast on rayon and nylon tire-cord fabrics. New mill-made equipment and improvements give better tire cords.

When Firestone Textiles, Div. of Firestone Tire & Rubber Co., purchased its plant at Gastonia, N. C., it produced only cotton tire-cord fabric. Now all tire cords produced at the mill are rayon and nylon fabrics.

Nylon is being used in a substantial proportion of the total amount of tire cord manufactured at Gastonia, and the recent addition of electronic tire-cord tensioning and gum-dipping equipment is further increasing the amount of nylon available for use.

The strength of a tire and its ability to minimize the heat generated by high speeds are largely the result of the kind and quality of cord used in its construction.

A tire body consists of several plies of nylon or rayon cord that are inseparably bonded together. The tread of the tire is applied over the bonded layers of cord.

Quality Comes First

To insure safety in tires, quality is the first consideration at Firestone. This safety is insured with a well-organized quality-control department. This department tests materials in the laboratory and also inspects materials as they are being produced in the plant. For example, samples of yarn and fabric are subjected to rigid tests for strength, stretch, yarn number, gauge, twist, moisture regain, etc.

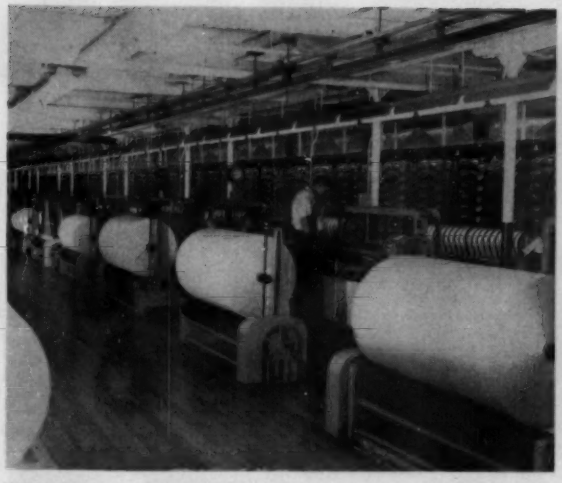
Nylon yarn is received at the plant on 1,200-lb. beams. The beams are all-aluminum construction. Beams of yarn are carried to the twister room by an automatic tray elevator, where they're taken by an overhead rail system to storage racks. When a beam is needed at a twister, it is moved again by the overhead rail system. Each beam contains 160 ends of yarn, on 840-den. yarn, for example, each end of yarn is 39,000 yds. long.

Twisting Is the First Operation

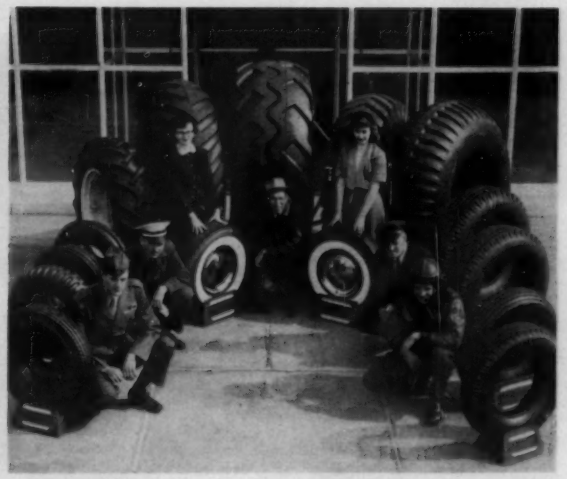
The yarn is first twisted on ply twisters that were modified by Firestone. The twisters are driven by individual motors. The induction motors are the lint-free type, and they drive the twisters with V-belts. The twisters have two push buttons, one at the traverse end of the twister for starting and stopping and the other at the yarn-beam stand to stop the beam before all the yarn runs off. All frames are equipped with stop motions developed by Firestone.

At ply twisting, 1.1-lb. packages are twisted on fibre-head bobbins. Rings for ply twisting are 3½x1-in. multi-groove grease-type. Nylon travelers are used to facilitate high-speed operations and to improve housekeeping.

From ply twisting, yarn is respooled from 1.1-lb. packages to 7¼- to 8-lb.



WEAVING is the next step after cable twisting. Rolls of fabric often weigh 3,500 lbs.



TUBELESS TIRES of lighter weight are made for all types of tires. They're also stronger.

packages. The respoolers were rebuilt by Firestone. They now have ball bearings, a braking apparatus developed by Firestone, and a trough to remove empty spools.

Yarn Is Cable Twisted

The respooled yarn is taken to larger twister frames for cable twisting. Two ends are combined in a 3½-lb. package containing 7,500 yds. of two-ply 840-den. yarn, with twist according to specifications.

Rings are 5½x1-in. multigroove grease-type. Nylon travelers are used.

The cabled yarn is doffed at predetermined yardage. Yardage counters stop the twisters at the desired yardage.

All twister rooms are equipped with fluorescent lighting. The lighting averages 22 ft.-c.

Looms Weave Cord From Spools

The cabled cord goes directly from twisting to the weave room, where the spools are put on loom creels.

When a creel runs almost out at the loom, all cord is cut off and tied in knots back of the eye boards. Several inches of cord are left back of the eye board. All spools are removed.

The full spools of cord are put on the creel, and the cord ends are tied to the ends of the old cord. Men place the spools on the creels, and women tie the cords.

The knots from the new creel are pulled through the eye board, loom drop wires, harnesses, and reed. Then the loom is restarted. Pieces of yarn left on the spools are salvaged for reuse by a method recently developed at Firestone.

Rayon Is Handled Like Nylon

Rayon yarn is produced and woven in much the same manner as nylon yarn. Most rayon used is 1,650 den. It's ply twisted, respooled, and cable twisted to two-ply 1,650 den. Filling yarn for the looms is quilled on automatic filling winders.

Special tire-cord looms improved by Firestone weave the fabrics to specified widths. Atmospheric conditions in the weave rooms are carefully controlled.

Fabric styles have 18 to 36 ends per inch and 3 to 5 ppi. The length of cloth woven in a single roll depends on the ends per inch; on rayon fabric, rolls vary between 750 and 1,200 yds. The weight of a roll is often 1,250 to 1,300 lbs.

Rolls of Fabric Weigh 3,500 Lbs.

Nylon fabric also varies in length, and rolls often weigh 3,500 lbs. Fabric is doffed at the looms at predetermined yardage by setting a yardage counter to stop the looms.

Rolls of cloth are doffed at the loom by an overhead monorail system, and the fabric is then weighed and recorded. The roll of fabric is covered with burlap and secured with steel strapping for protection.

The fabric goes down a tunnel, where it is transferred to a continuous conveyor to be moved to an area for shipment or storage. Shipments are made from Gastonia to Firestone tire plants throughout the world.

Electronic Process Locks Tension

Most nylon fabrics are processed further at Gastonia with electronic equipment producing Firestone's safety-tensioned, gum-dipped tire cord. This huge unit is as high as a five-story building, and it's three times as long as it is high.

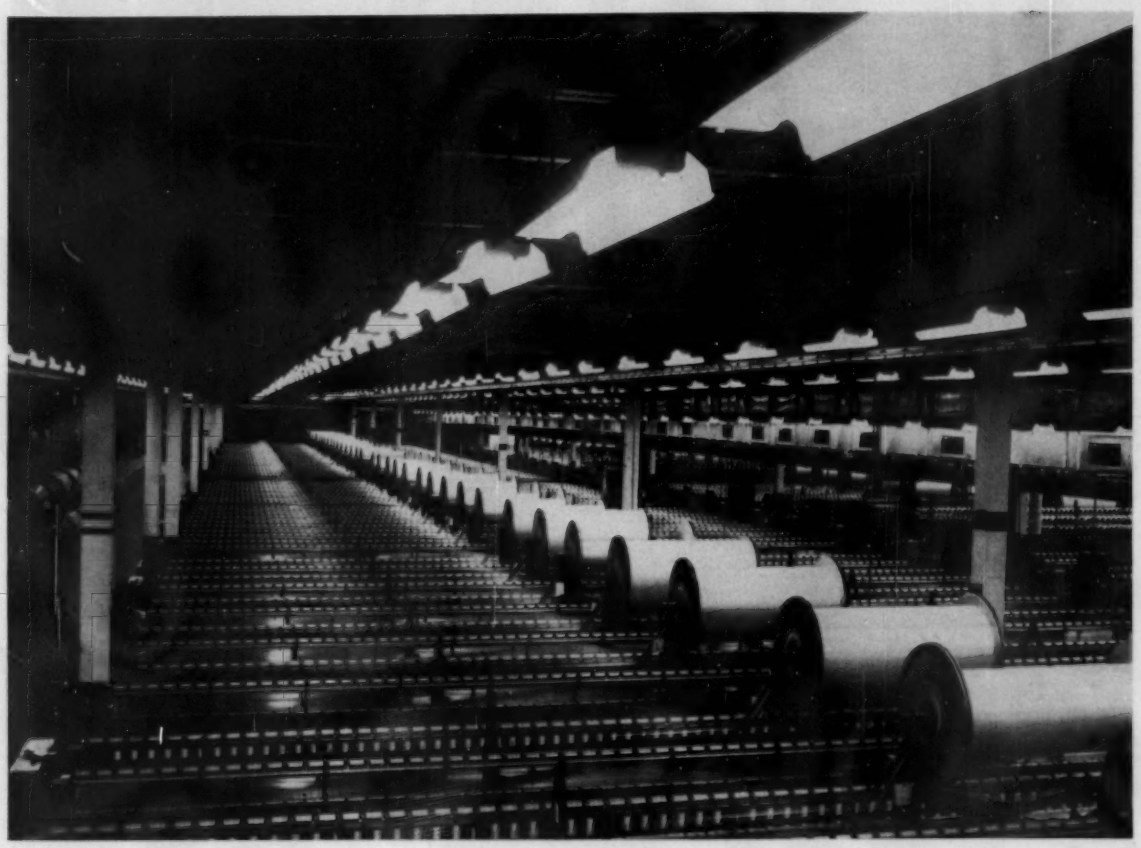
The unit gum-dips nylon cord, stretches it, and tempers it in one continuous electronically controlled operation.

Rolls containing 5,000 miles of cord are placed on the let-off at the back of the unit. Automatic roll-changing and fabric-splicing equipment permits the unit to operate continuously.

As the cords pass through the unit, they are dipped with a chemical solution. Then they're stretched and tempered in a three-stage bank of powerful water-cooled tension rolls and high-temperature direct gas-fired ovens. Therefore, the fabric absorbs the penetrating gum dip, which gives greater adhesion of the rubber to the cords.

In the final operation of the unit, the cord fabric is wound up on shells and is wrapped for shipment to Firestone tire-manufacturing plants.

The unit results in safer, stronger, and longer-wearing tires. It was specially designed and built by Firestone and was the first equipment of its kind in the world.



NYLON TWISTING at Goodyear's two-year-old Cartersville, Ga., mill is the first operation in tire-cord manufacture.

Recent FABRIC ACHIEVEMENTS Improve Cars and Aircraft

• Machine developments in several Goodyear plants are resulting in improved fabrics for cars and aircraft. One development cost $5-million.

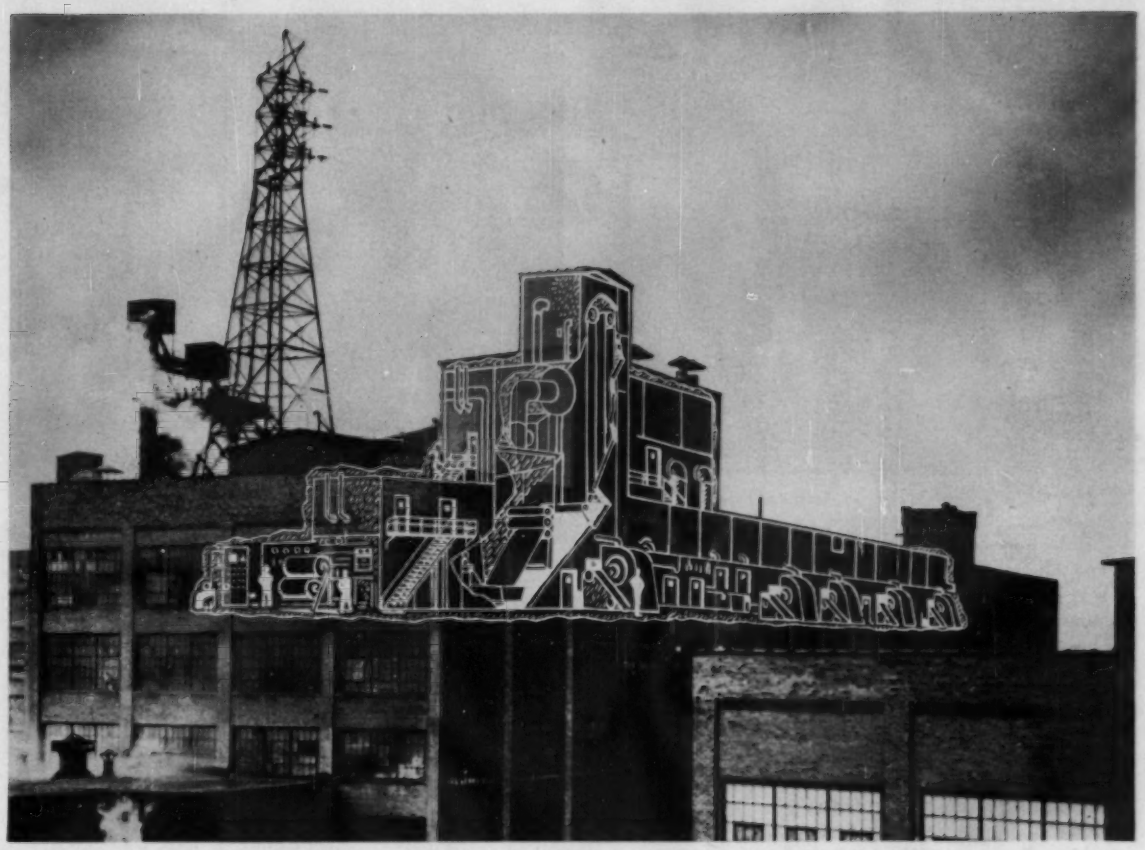
GOODYEAR TIRE & RUBBER CO. has made several recent achievements in the industrial-fabrics field, particularly in tire-cord fabrics.

A new process by Goodyear, called 3-T, chemically treats tire fabric and then puts it through a triple-tempering process. The fabric is subjected to high tension and high temperature for a precise period of time.

This process sets nylon and rayon tire cords at the point of maximum strength and resiliency. The process eliminates wild stretch of the fabric in tires that resulted in carcass growth. New adhesives were developed along with the mechanical engineering.

Therefore tires made from 3-T fabrics are light and cool-running.

In the final design features of the huge 3-T machines, Goodyear's development engineers worked closely with J. O. Ross Engineering Corp. and John Waldron Corp. Basic design and manufacture of the machines were carried out by engineers of the two companies.



$1-MILLION MACHINE for the 3-T process is at Akron and is four stories high. Two other plants have identical machines.

Process Cost $5-Million

The research and manufacture of the 3-T process represents an investment of $5-million and 60,000 manhours by engineers.

Goodyear has three of the giant machines, each costing more than $1-million. The machines are at Akron, Ohio, and Rockmart and Cartersville, Ga. New buildings were constructed at Rockmart and Cartersville, and 120,000-gal. latex-storage tanks were installed at all three plants.

At Akron, an addition was built on top of a seven-story plant. The machine is 60 ft. high. It winds down from the seventh floor, where untreated fabric enters, to the fourth floor, where the processed cord is taken out. A third of a mile of fabric is stretched under tons of tension in a single operation.

An intercommunication system is used to relay orders between floors, and traffic signal lights and horns provide safeguards.

The machine is 150 ft. long and processes 100,000 yds. of nylon or rayon fabric a day.

Development Has Four Advantages

Some of the important improvements in fabric treatment made possible by the new units are:

1. Tension is increased many times over normal treatment practices.
2. Higher treatment temperatures allow faster and more-efficient drying.
3. Tower drying replaces water-cooled rolls and eliminates water dripping on treated fabrics.
4. Automatic tension and stretch controls are operated by electronic instruments.

Every great advance in tire performance has followed a basic improvement in tire-cord fabrics. Thus tire mileage has steadily increased, and there's far greater resistance to blowouts with greater safety to motorists.

Cords Prove Themselves in Action

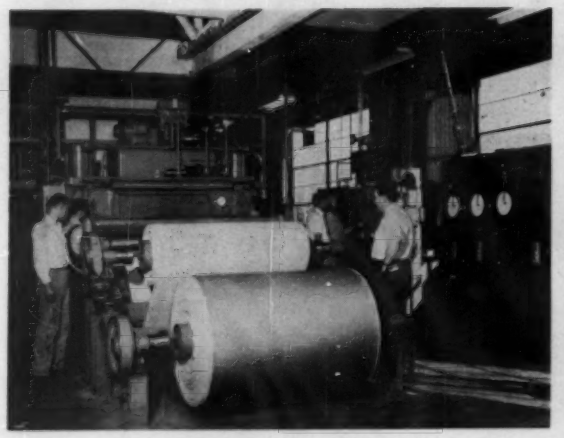
Punishing tests of tires in the laboratory and on the road substantiate claims for the new nylon tire cord. All-nylon cord tires have been rammed head-on against curbs at 55 mph. without breaking a single cord.

A new blowout-safe tire, Captive-Air, is a by-product of the research done on 3-T. This tire allows a motorist to drive on for 100 miles or more after a tire has been ripped wide open by a blowout. The tire is now being marketed as a replacement tire and is expected to appear on many 1958-model cars.

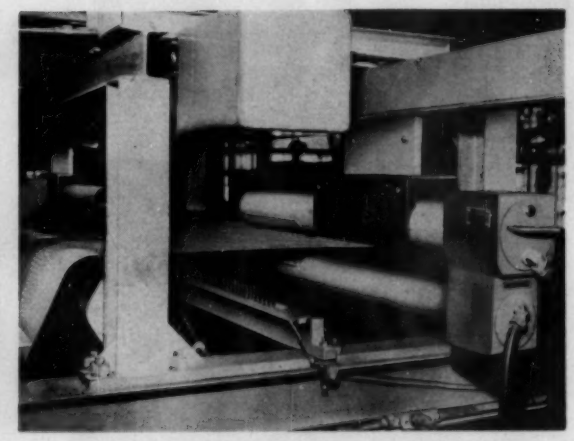
Today's cars are being driven at high speed; and speed generates high heat, a mortal enemy of tire-cord fabrics. The fabric must be tougher, lighter, more resilient, and more resistant to heat. Further research at Goodyear is aimed at improving the 3-T process and the basic tire cords.

Automation Aids Calendering

A second recent achievement by Goodyear is at the Los Angeles, Calif., plant where automation and radiation gauging are used in tire-fabric



UNTREATED FABRIC enters the 3-T machine here for mass production of 100,000-yd. output each day.



AUTOMATION in controlling the rubber sheet applied to tire-cord fabrics results in better tires at no increase in cost.

calendering.

The initial gauge, produced by Isotope Products, has been in operation for several months and permits adherence to close tolerances in the production of rubber sheet. The results are more-uniform tires and better tires at no increase in cost.

The control, Betameter, consists basically of a radiation source and detector that translate radiation energy emitted from the source into an electrical signal. When a material is placed between the source and the detector, a portion of the radiation is interrupted in direct proportion to the mass of the material. The Betameter can then be calibrated in terms of any units of weight-unit area desired.

Primary advantages of the gauging are: (1) the response is extremely rapid; (2) the element never touches the material being measured; (3) taking hand samples and other time-consuming control methods are no longer necessary; and (4) with easily deformable rubber, noncontacting gauging is particularly valuable because contacting gauging would compress the stock and give false readings.

Operator Becomes a Supervisor

Advanced methods of electronic design, using the principles of null balance, permit simplified construction and extremely accurate and stable measurement. In addition, the unit automatically compensates for variations in ambient temperature, pressure, and the decay of the radioactive source.

The unit is periodically automatically self-standardized to further insure accurate and reliable control.

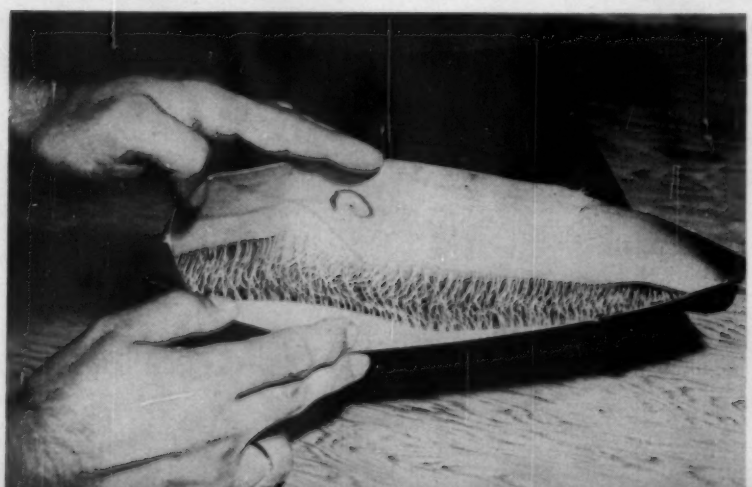
To provide a definite correlation between length of record chart and fabric production, the chart is directly synchronized to the fabric speed by a motor interlock. In this fashion, the chart moves 1 in. for every 100 yds. of product. To provide the time correlation in analyzing charts in quality control, the date and time are automatically stamped on the chart every 15 mins.

To assist the operator in establishing new specifications and in setting and controlling the calender stack manually, the exact position of the calender rolls is indicated on the control console.

The operator is free to perform other duties while he supervises the production of better tire cord.

The gauge controls the rubber sheet over a wide range from ½ lb. per sq. yd. to 3½ lbs. per sq. yd.

HELICOPTER PROPELLER is made from a woven fabric of inflatable structure. Drop threads determine the contour.

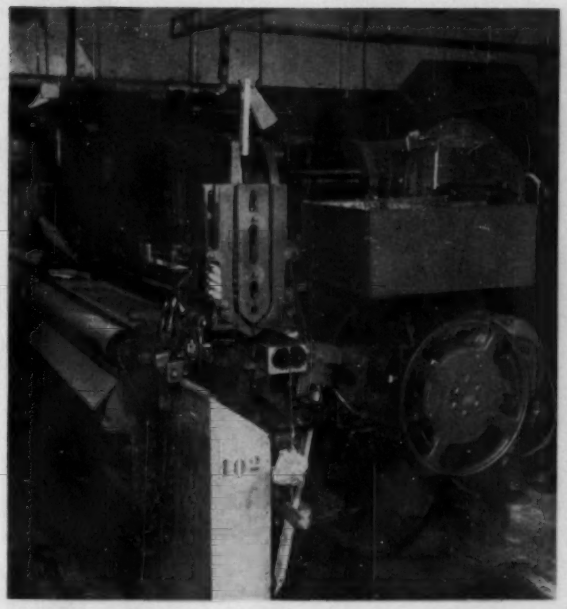


Fabric Makes Helicopter Blades

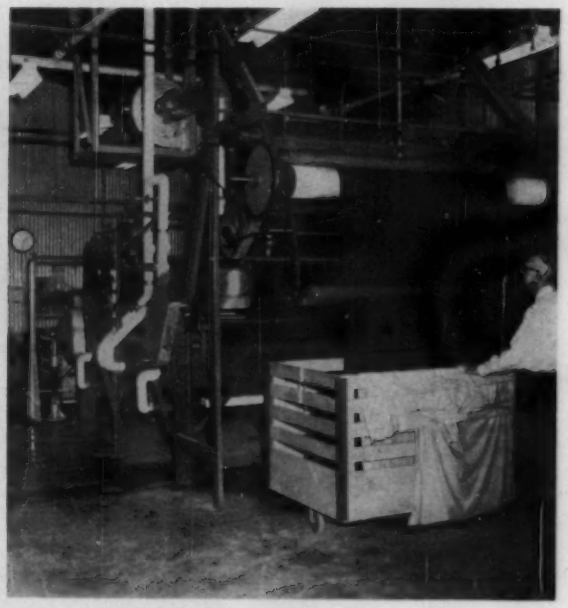
Another recent development of Goodyear is collapsible fabric rotor blades for helicopters and convertiplanes. The blades are inflatable woven structures with airfoil contours.

A typical structural member consists of two basic layers of high-strength cloth that are woven simultaneously with drop threads interconnecting the layers. The length of the drop threads determines the inflated contour of the section. After it's woven, the basic cloth is coated; and cover layers are applied.

This type of fabrication has three advantages: (1) it is light in weight; (2) it requires a minimum storage area; and (3) production rates are high, and therefore the cost is low.



STANDARD LOOM is used to weave the 3-D fabric. Polyethylene is on the top beam.



SHRINKAGE RANGE shrinks the polyethylene yarn from 25 to 40% in hot water.

3-D UPHOLSTERY FABRIC
Is a New Development

• A flat fabric woven on regular looms becomes permanently three-dimensional when it's treated with hot water. At least five mills are weaving the fabric. Here are the general methods used.

ONE OF THE MOST-RECENT developments in automobile upholstery fabrics is a textured effect made with standard loom motions. Prestretched polyethylene warp yarn woven into the fabric with other yarns of common fibers gives the effect known as 3-D.

Several mills are presently weaving the fabric, some under licenses from other mills. Mills most active in weaving the fabric are Reeves Bros., Inc., United States Rubber Co., Collins & Aikman, Chicopee Mills, Inc., and Bates Mfg. Co.

The fabric is flat while it is being woven on the loom but forms puffs and many other desired shapes when it is immersed in water at 205 to 210° F. To form the puffs, the fabric is run through a shrinkage and drying range. Shrinkage is controlled between 25 and 40%, as desired.

Finishing is primarily a shrinking operation, but on some styles of fabrics desizing and piece-dyeing are done. However, most 3-D fabrics are yarn-dyed.

Common Weaving Practices Used

Polyethylene usually runs lengthwise in the material and can shrink as much as 55%. The finished fabric may be from $\frac{1}{16}$ to 1 in. thick.

The fabric is commonly woven on multishuttle looms but can be woven successfully on single-shuttle looms. Patterns are woven from two or three yarn beams and from one to four colors or types of filling. Polyethylene yarn added by an extra shuttle box on multishuttle looms forms more exaggerated puffs.

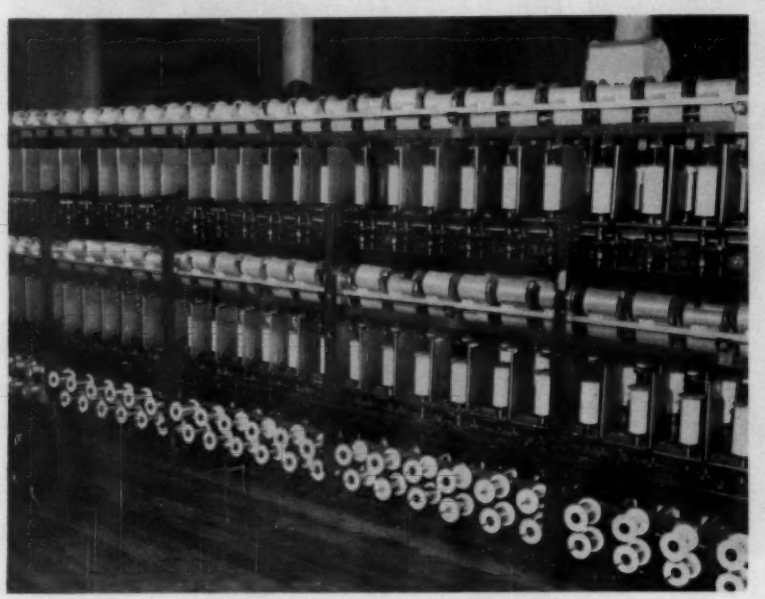
The chief advantages of the fabric for upholstery, as explained by one weaver, are: (1) unusual comfort, (2) free circulation of air between a person and the car seat, (3) long-lasting qualities, and (4) it stretches enough to fit seat contours.

Fibers being woven with the polyethylene yarn are saran, nylon, linen, cotton, spun rayon, filament rayon, and metallic yarn. But any other fiber can be used.

Generally the fabric woven is 58 to 66 ins. wide. Warps contain 4,000 to 10,000 ends. Picks per inch are 8 to 38. Polyethylene ends often float 15 to 20 picks and then weave in every second pick for 30 picks. Polyethylene yarn is woven from a separate yarn beam.

In weaving polyethylene yarn, there are no unusual problems. Yarn is often bought from yarn suppliers on beams, and it is not slashed.

Because positive shrinkage control during finishing is so important, cut meters are used in weaving to doff rolls of cloth in accurate lengths of 70 to 80 yds.



FLETCHER UPTWISTER is adding supporting nylon yarn to metallic yarn for a decorative effect.

AUTOMOBILE FABRICS
Enter a Styling Era

• Automobile manufacturers are now demanding lustrous upholstery fabrics with a filament-yarn face. Here's what J. P. Stevens & Co., Inc., is doing to supply the fabrics.

A HARD BLOW is being struck at woven automobile upholstery fabrics by vinyls and vinyl-covered fabrics.

To compete with these new coverings, mills are weaving high-style fabrics. The results are lustrous-looking fabrics with an attractive appearance and long-wearing qualities. The big problem in manufacturing these fabrics is to compete in prices with the cheaper-made vinyls.

Many veteran textile men point out superior qualities of woven fabrics over vinyls for automobiles. Among the qualities are (1) the warmth of textiles as opposed to the cold metallic feel of vinyls during the winter months, (2) the coolness of textiles as opposed to the objectionable heat of vinyls during the summer months, (3) the quietness of the automobile trimmed with sound-absorbing textiles as opposed to the high noise level in vinyl-trimmed cars, and (4) the luxuriant living-room appearance of the new textiles in contrast to vinyls.

J. P. Stevens & Co., Inc., Greer Plant, Greer, S. C., is an example of a mill doing a good job in styling and manufacturing upholstery fabrics for automobiles. Manufacturing upholstery fabrics isn't a new venture for Stevens. For many years, conventional wool upholstery was woven at its Hockanum mills at Rockville, Conn.

Four years ago, the Greer Plant began weaving fancy upholstery patterns from natural and synthetic fibers. Thousands of patterns are woven on the same machinery used to prepare yarns and weave blended wool and synthetics suitings.

Use Two Types of Fabrics

At present, automobile manufacturers are buying two basic types of high-quality woven upholstery:

1. Yarn-dyed fabrics or yarn-dyed and slasher-dyed combinations that do not require piece dyeing. In finishing, these goods are boiled off and scoured. Then a latex backing is put on. For these fabrics, the most important control is in gray weaving.

2. Piece-dyed fabrics. The bulk of Stevens' fabrics is piece dyed. It concentrates on this weaving because of greater flexibility.

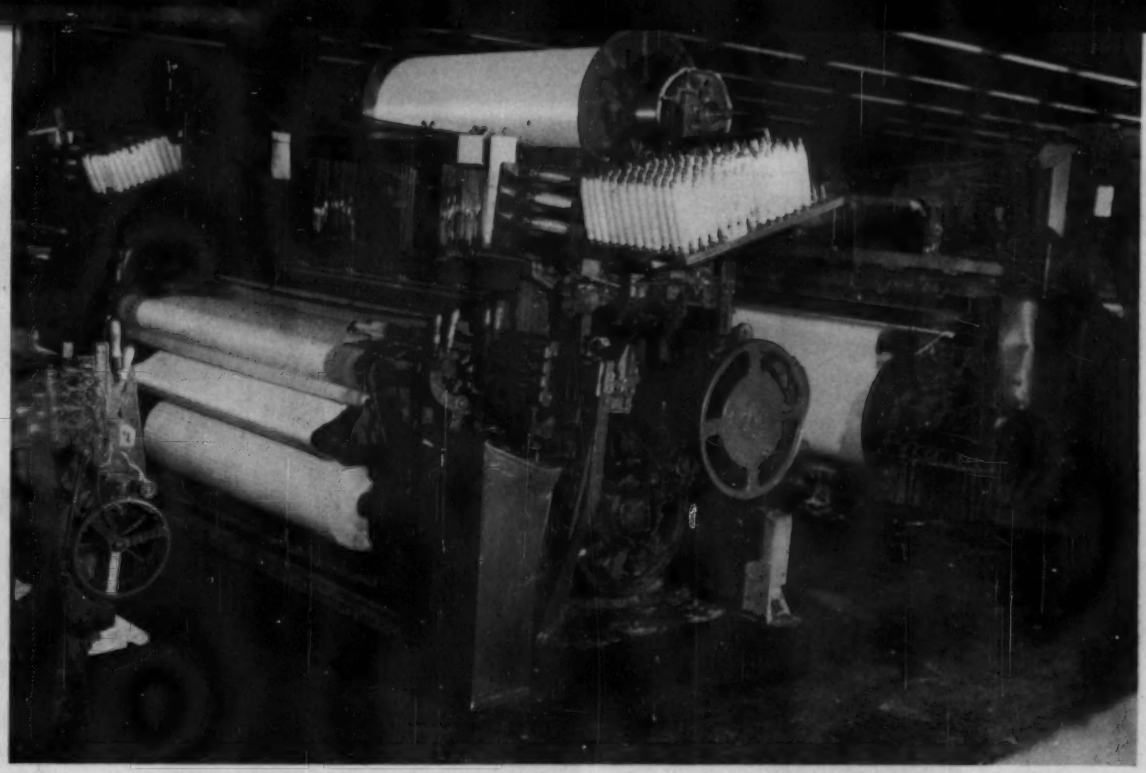
Greater flexibility is possible because fabric can be dyed the desired shade quickly. Therefore delivery is fast.

There's another advantage, too: when color trends change, there isn't a large inventory of colors that cannot be changed.

However, this method of weaving changes the quality emphasis from weaving to dyeing and finishing. Special care in dyeing for great color uniformity is necessary.

Patterns Are Textured

But Stevens' fabrics aren't plain. Metallic, solution-dyed, and nylon yarns are used for a textured appearance.



C&K C-4 LOOM is running pick-and-pick on three colors of filling. Two warps are used.

A big-volume construction is 80 ends per inch and 32 ppi. With this construction, 200-den. nylon is used as a top beam to give basically a 100% nylon face. Cotton or rayon is used for a ground beam to form the back of the fabric.

Cotton or spun-rayon filling is used. The filling is both natural color and yarn dyed. More-uniform yarns are spun from rayon at this plant.

Other styles have 80 ends per inch and from 30 to 70 ppi. Fabric width varies from 46 to 68 ins. The average width is 60 ins.

Yarn is prepared on conventional cotton-yarn equipment. It's carded, spun, and usually twisted. Filling is rewound on Abbott quillers. Metallic yarn and other yarn for decoration are wound on Universal No. 90 horizontal winders.

Conventional Methods Used

Warp yarns are beamed on Barber-Colman and Reiner warpers at approximately 400 yds. per min. They are slashed on Cocker rayon slashers. Nylon warps for top beams are slashed on the same slashers as ground-beam warps and at the same speed. There's no unusual slashing problem.

All upholstery fabrics are woven on Crompton & Knowles 78-in. C-4 looms. The looms are convertible from 4x1 automatic bobbin-changing looms to 4x4 pick-and-pick looms. Stevens specializes in pick-and-pick fabrics.

All fabrics not woven pick-and-pick have the filling mixed 2x2 by the shuttle boxes to assure uniform dyeing.

All looms have Knowles head motions. Since automobile manufacturers' greatest interest at present is in lustrous filament-faced fabrics, the Knowles heads do a good job.

Two beams are used at the loom: the top beam is usually a nylon warp; the bottom beam is cotton or spun synthetics yarn.

What Is a Good Supplier?

Newton B. Jones, Stevens' manager of design and development, automobile-fabrics division, lists the following qualities necessary for being a good supplier:

"1. Develop new fabrics. This work is expensive, but it gets the business.

"2. Dependable delivery. Automobile building is on a production-line basis, and manufacturers can't wait for delivery of fabrics.

"3. Dependable quality. You have to be specification conscious—uniform quality and uniform color. Every yard of finished cloth is marked on the back with the fabric manufacturer's name or initials; the marks are placed every 9 ins. and are staggered on 18-in. centers. Consequently bad fabrics in an automobile can be traced to the weaver.

"4. Price. You must be competitive if you want to sell cloth.

Entering a Styling Era

"Automobile fabric manufacturers are in a styling era: appearance sells cars; automobile designers are constantly seeking a new, attractive, and different fabric; they are just as conscious of interior trim as outside body styling and paint; they are also conscious of comfort."

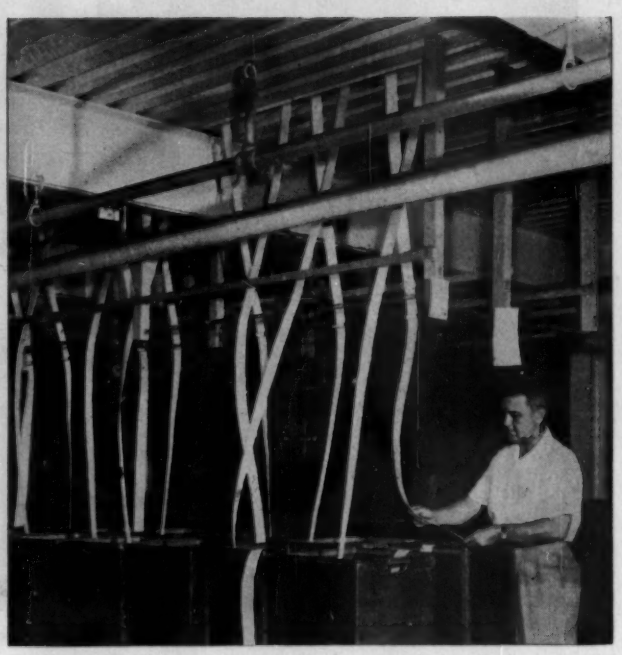
In addition to upholstery fabrics, Stevens is making fabrics for convertible automobile tops at another plant. This material has been woven at Greer, S. C., for four years and is basically satisfactory for convertible tops.

The top material is woven on Draper looms in six colors of solution-dyed spun rayon; black is the most colorfast. Orlon and Dacron blends have been woven for tests, and automobile manufacturers are interested in the results.

Tops with vinyl covering are the big competitor of woven tops. Vinyls and vinyl coverings have also taken the complete business in side panels for automobiles.

Other automobile fabrics manufactured by Stevens in large quantities are tufted carpets and woven headlinings. Headlinings feature dobby weaves with small patterns and synthetic yarns in some of the filling.

NYLON WEBBING is woven on a C&K loom with single-deck battens. The loom speed is 150 ppm., and fabrics average 28 ppi. for all styles.



FABRIC INSPECTION is constant in the basement below the looms. The woven webbing comes directly from the loom through slots in the floor.

NARROW FABRICS
Swing to Safety Belts

• Safety is becoming a responsibility of automobile manufacturers, and many narrow-fabric mills are weaving nylon fabrics for safety belts for automobiles. Here's how one mill makes the belts.

A RELATIVELY NEW FABRIC is easing the strain on the narrow-fabric-weaving market caused by the loss of a large part of the armed-force-webbing buying since the Korean conflict.

The fabric is nylon safety belts for automobiles. Expanded air-line operations are also increasing the use of webbing for safety belts.

In the fall of 1955, about 75 manufacturers were fabricating safety belts from nylon webbing. But production has slackened somewhat because fabricators stocked heavily in 1955.

To date, Chrysler and Ford have been the big users of the belts. Because the belts have been accepted so well, more emphasis will likely be placed on them in 1957 automobiles.

The nylon belts are strong and attractive, and they are tough enough to meet the requirements of the Society of Automotive Engineers and the American Standards Association.

Belts Dress Up Cars

In addition, they are easily dyed with fast colors to harmonize with the interior of cars.

Webbing is sold by weaving mills to safety-belt fabricators and not to automobile manufacturers. The price of a belt complete with hardware varies between $7.50 and $25.00. A very serviceable belt sells for $10 to $12 and is the most sensible price range.

Southern Weaving Co., Greenville, S. C., is a pioneer weaver of the nylon webbing. The mill makes webbing for both automobile and aircraft safety belts.

Safety-belt webbing for aircraft is 2 ins. wide, ±$\frac{3}{32}$, and 0.10 in. thick. The tensile strength is more than 6,000 lbs.

The face and back of the fabric are woven with nylon plied yarn; the stuffer, or center portion, is high-tenacity tire-cord rayon. The yarn is not slashed.

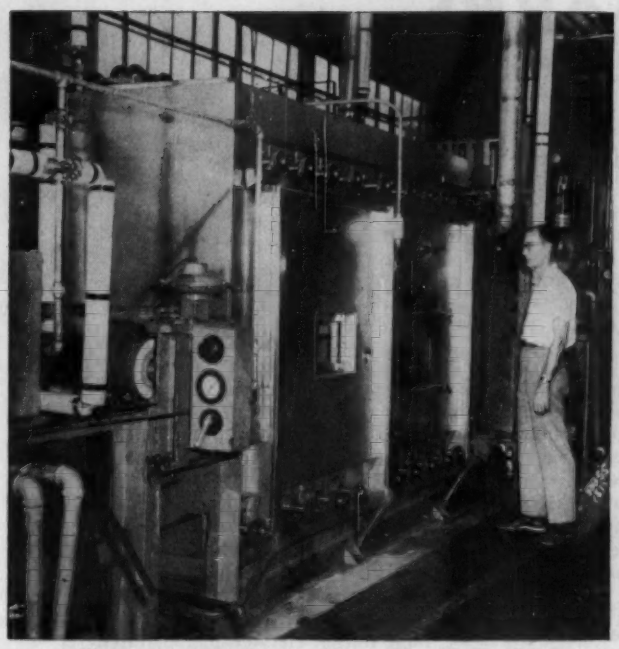
Woven on Standard Looms

These belts are woven on Crompton & Knowles narrow-fabric looms with 20- and 24-space single-deck battens.

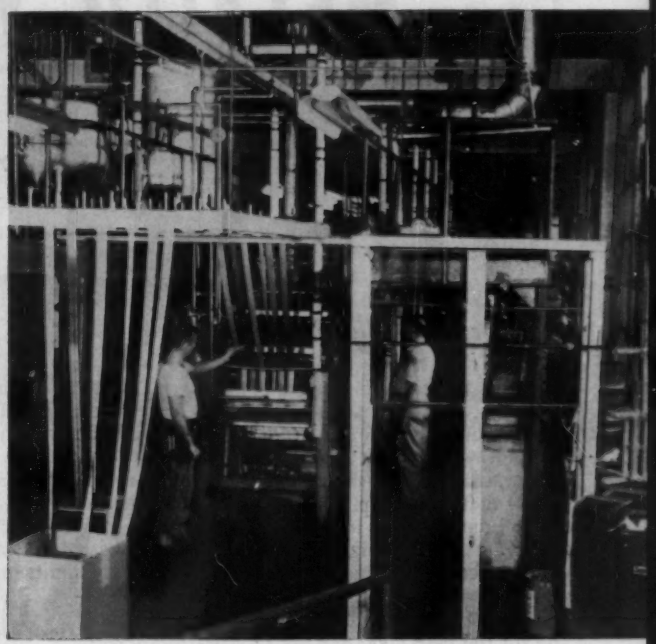
There are three rows of yarn beams at the looms. The top and bottom beams for the face and back are 26 ins. in diameter and contain nylon yarn.

The middle beam is 20 ins. in diameter and is filled with high-tenacity rayon.

Nylon filling is used. The looms run



DYEING AND FINISHING are done on a continuous range. The equipment is stainless steel and is completely operated by instruments.



CUSTOM DYEING averages 10 to 12 colors in process all the time. Inspected tapes are sewn together into long lengths before they're dyed.

at 150 ppm. Fabrics average in the range of 28 ppi.

Automobile safety belting is also 2 ins. wide, but it is only 0.08 in. thick. All warp yarn and filling yarn are nylon. The all-nylon automobile belts are stronger than the thicker aircraft belts.

Southern Weaving buys all its yarn. Bobbins of filling are quilled on a Glodde winder. Warps are warped on a Warp Compressing warper and a Reiner creel.

The woven webbing goes from the loom through slots in the wood floor of the weave room to the basement, where it laps in square fibre cans. An inspector patrols the cans to inspect the webbing for about 2 yds. between the overhead floor and the top of the cans.

In addition, the inspector measures the width of the woven webbing periodically.

The webbing is inspected again and sewed into long lengths for dyeing. Usually 10 to 12 colors are being dyed to fill orders. All colors are dyed to order; no webbing is stocked.

Webbing is dyed in a continuous-dyeing range designed by Southern Weaving and manufactured by Greenville Steel & Foundry Co. A four-man team handles the dyeing process. Each step of dyeing is closely controlled with instruments.

The dyed webbing is inspected again for defects and is checked for shade as it comes from the dyeing range.

Dyed webbing is cut into proper lengths three lengths at a time on a punch press. The punch-press operator stacks 8 to 10 pieces of webbing at a time on a pallet, which moves along a conveyor belt to one of three inspectors.

Control Quality Closely

An inspector inspects the top surface while the webbing is still on the pallet. Then she turns the belt over as she removes it from the pallet, and inspects the other side.

If there is a woven defect or color imperfection, a piece of webbing is discarded. But if the webbing meets the standard requirements, each end is touched against a heated plate to fuse the ends to prevent raveling.

The inspector packs the pieces of webbing in pairs. Usual lengths of a matched pair are 42½ ins. and 44½ ins.

Yarn and fabric are thoroughly tested in the physical-testing laboratory at each step in production. Webbing, for example, is tested on an instrument that records tensile strength between 50 lbs. and 10,000 lbs.

Other webbing tests are for (1) dimensions, and (2) wear and abrasion resistance. Colors are tested for bleeding, crocking, and lightfastness. A weatherometer tests weathering characteristics of colors and wear resistance.

Weave Nylon Spinning Tape

Other industrial fabrics woven at Southern Weaving are spinning and twisting tapes. Cotton tapes have been woven at the mill for more than 20 years, but the newest tapes woven are nylon.

The tapes are woven on Fletcher and Crompton & Knowles double-deck-batten narrow-fabric looms. Loom speed is usually 180 ppm. Unslashed plied yarns are used.

Spinning tape is ½ to ¾ in. wide; twister tape is 1 to 2 ins. wide. Nylon spinning tape is 0.026 in. thick; twister tape is 0.06 in. thick.

The nylon tape has several advantages, as pointed out by President William Lowndes, Jr.: (1) it's very thin, (2) will not stretch, (3) does not attract lint, (4) is more flexible, (5) is light in weight, and (6) is easily spliced by applying heat and pressure.

How To Process Lurex METALLIC YARNS

Fabrics containing Lurex metallic yarns may be handled by conventional wet-processing methods if you—

- **Choose dyes and chemicals to suit the type of metallic yarn**
- **Avoid rough handling and excess tensions**

SUCCESSFUL WET PROCESSING of fabrics containing metallic yarns is not difficult if a few points are kept in mind.

First, the processor should know the type of metallic yarn present; or if the source is unknown, as is often the case in commission finishing, the plant laboratory should make trial runs on samples to see if a particular metallic yarn will withstand the processing necessary for the base fiber.

In the case of Lurex metallic yarns, there are three basic methods of manufacture. The yarns are sandwiches composed of two layers of a plastic that protect the filling of aluminum foil or metallized base. The chemical nature of the plastic film, the adhesive that attaches it to the foil, and the color that may be printed on the plastic or dispersed in the adhesive must be taken into account in wet processing.

The general makeup of the yarns must be considered despite the fact that in dyeing, cellulose acetate-butyrate films behave like acetate yarns, and Mylar films behave like Dacron.

The other factors in metallic-yarn structure must be heeded because metallic yarns are produced by slitting sheets into various widths, and each edge exposes the entire cross section of yarn to processing effects.

How Wet Heat Affects Lurex

The gold and silver types of metallic yarn may be exposed to boiling baths for up to 8 hrs., depending on the effect of bath materials on one or more of the yarn components.

In aluminum-foil-butyrate yarns, the high heat conductivity of the aluminum helps to counteract the relatively low heat resistance of the cellulose acetate-butyrate film. If the yarn is exposed to high temperatures for over an hour, the film tends to blush or become cloudy. This effect is caused by water absorption in the film or the adhesive and can be cleared up by drying for 3 mins. at 300° F.

Lurex MM and Lurex MF do not blush in wet heat and can be wet-processed at elevated temperatures within the limits imposed by the bath contents.

What Dry Heat Does

The normal temperatures encountered in drying, treating, and curing fabrics do not harm metallic yarns of the types mentioned above. Superheated drying media should be avoided. If dry heat is accompanied by pressure, the temperature should be limited to moderate ranges in the case of butyrate-film yarns. Pressure with heat in excess of 225° F. can cause shifting of the film away from the aluminum-foil base.

Dry heat in excess of 300° F. may cause delamination of butyrate-foil films if they contain moisture.

Lurex MM is similarly limited to 275° F. with pressure. Lurex MF has a limit under these conditions of 300° F.

Moderation Is the Key

Optimum processing conditions for metallic yarns are found at a pH range of 6 to 8 and at moderate temperatures. Lurex is resistant to moderate quantities of acids at low to medium temperatures. The butyrate-film types will withstand cold sulfuric acid at neutralizing concentrations, and it is better to extend the neutralizing period than to use heat and a shorter cycle.

In wool dyeing, where sulfuric acid is commonly used for extended periods during the dyeing, it is safer to substitute acetic or oxalic acid where possible. Heavy concentrations of sulfuric acid at elevated temperatures will delaminate or discolor butyrate films. Salicyclic, benzoic, and formic acids may produce the same effects at high temperatures. Moderate to high concentrations of hydrochloric acid may remove the aluminum from butyrate-film yarns.

Lurex MM and Lurex MF have generally higher resistance to acids under most practical wet-processing conditions. However, moderate to heavy concentrations of hydrochloric acid will remove the aluminum from both these foils at elevated temperatures.

Watch Alkalis

Because aluminum is readily attacked by caustic soda, this chemical should be used very carefully or eliminated if possible when metallic-yarn fabrics are to be wet processed.

Loss of luster is caused by caustic etching, and the effect is more pronounced at high temperatures or long exposures. Butyrate-film types of Lurex will stand mercerizing or sulfur-dyeing conditions, but the possibility of saponification of the butyrate film must be considered. Lurex MM will be etched by caustic concentrations common to cotton processing, and therefore this type of Lurex should not be used with caustic alkalis. Lurex MF will successfully withstand the caustic present in the usual cotton wet-processing operations.

Oxidizing-Reducing Processes Not Critical

Chlorine, peroxide, and sodium chlorite bleaches have no effect on any Lurex type under properly controlled conditions. However, the caustic content of peroxide bleaches should be kept at a minimum or etching may occur if the peroxide-saturated goods are stored for long periods.

None of the usual stripping agents affect any of the Lurex types.

Common salt does not affect Lurex, but soda ash will etch these yarns at high temperatures and moderate to heavy concentrations. Copper sulfate

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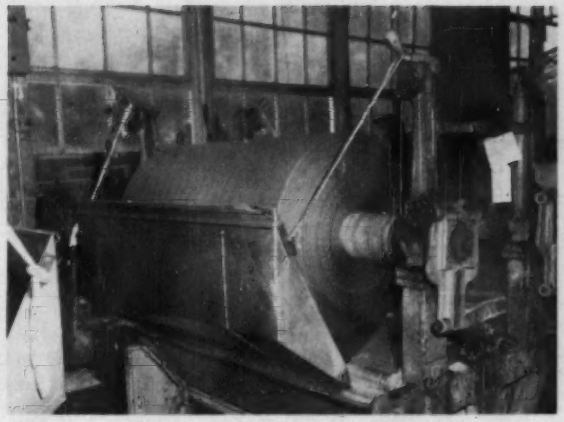
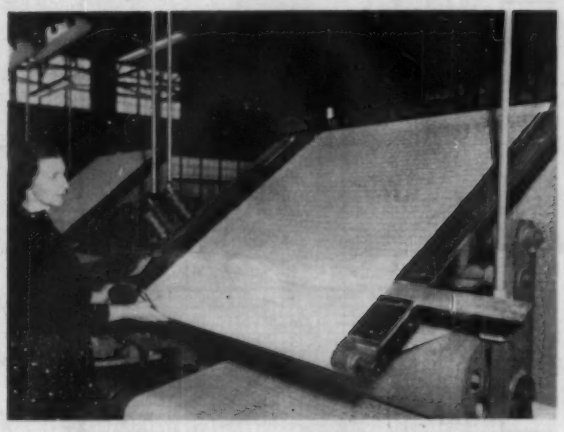
From a paper delivered before AATCC by Leon Seidel, Dobeckmun Co.



JIGS are used for the entire preparing and dyeing operation on metallic-yarn fabrics. The shield in foreground catches liquor thrown off by the roll and returns it to the bath.



FINAL EXAMINATION includes checking for hand, appearance, width, and in this case for the proper alignment of metallic yarns in the filling.

How Mount Hope Finishes METALLIC-YARN FABRICS

Metallic yarn for decorative effect is being used in many fabrics now. Mount Hope Finishing Co. processes drapery and dress-goods materials on jigs and gets good results with fabrics containing metallic yarns by—

- **Watching time, temperature, and chemical concentrations**
- **Resin finishing to cut down residual shrinkage**

By ROBERT W. PINAULT, Assistant Editor, TEXTILE WORLD

GOOD CONTROL of process and quick handling are helping Mount Hope Finishing Co. produce results on fabrics containing metallic yarns.

At its Henderson, N. C., plant, the company handles fabrics that range from fairly heavy draperies to chambrays. The metallic yarns may appear as warp or filling effects and may be of natural color or have a colored film.

One of the difficulties that faces the commission finisher is that he seldom knows the type of metallic yarn with which he is working. Some films and adhesives are much more resistant to normal wet processing than others; so there is always the danger of running into a metallic yarn that won't stand the wet processing required by the base fiber.

To get around this possibility, Mount Hope checks metallic yarns from unknown sources if the base-fiber processing might lead to trouble. At present, the laboratory is setting up a quick test method that will identify the more common film types such as butyrate acetate or Mylar.

But quick and moderate processing is the key to bringing metallic yarns through the mill day after day with their original sparkle and luster.

Basic Preparation Used

Mount Hope prepares all types of fabric containing metallic yarns in pretty much the same manner. Cotton fabrics are desized on the jig with an enzyme for 4 to 10 ends at 160° F. Then the goods are scoured with a synthetic detergent plus a mild alkali for 4 to 12 ends at 160 to 170° F. Temperature has to be watched here because alkali plus high temperatures may cause some types of metallic yarns to blush or even delaminate.

After a rinse, a hypochlorite bleach follows. Mount Hope uses a 4° Tw. bath for this process, run cold for 4 to 10 ends, depending on the fabric. Sodium bisulfite is used for an antichlor, and a thorough rinse completes the bleaching. If the final shade is a dark one, the bleaching process is skipped, as is also the case for most synthetic-fiber fabrics.

Dye Ends Kept Down

Direct colors and aftertreated direct colors are used for the great majority of work done on metallic-yarn goods.

Lighter shades are dyed with fast-to-light direct colors, and Mount Hope aims to get the goods off the jigs in 10 to 12 ends. Temperatures can be run to 200° F. for this operation because dye-bath chemicals have little or no

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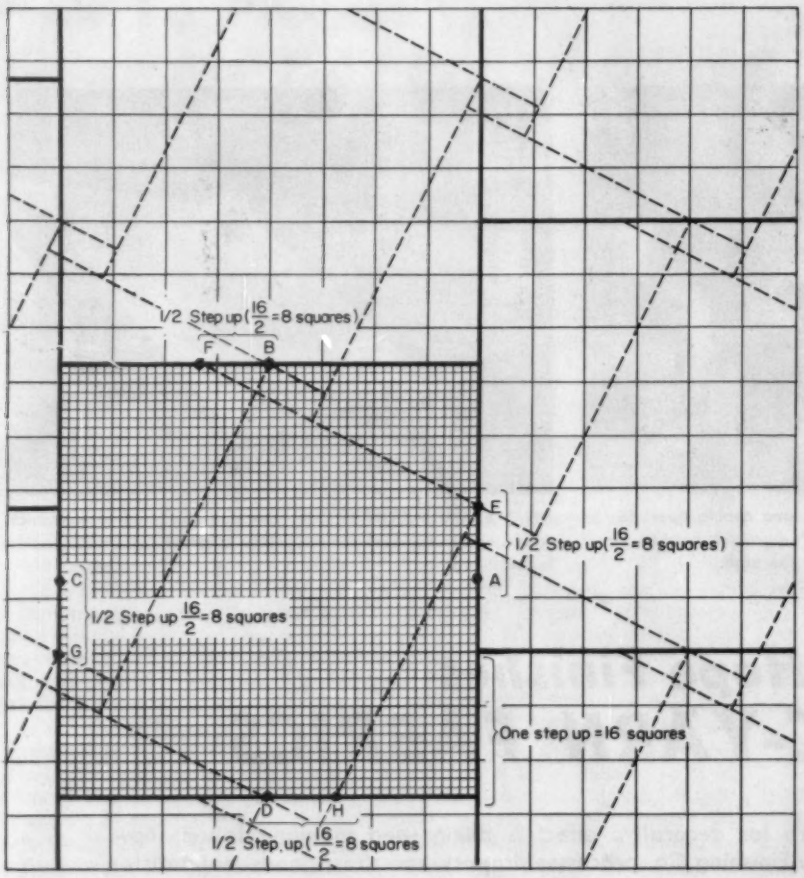


REVERSIBLE FIELD for patterns that step up to the right less than half the height of the pattern is made by connecting points *E*, *F*, *G*, and *H*. The original square pattern becomes two hexagonal areas.

Knitted REVERSIBLE PATTERNS *Save Time and Waste*

• A new method of laying out designs for pattern-wheel knitting machines allows fabric to be reversed on the cutting table without overlapping the motifs. The method saves time, reduces waste, and opens new avenues for design arrangements.

By L. PRELOG, Sydney, Australia

JACQUARD-TYPE knitted fabrics made on pattern-wheel machines or machines that use film selection usually cannot be reversed on the cutting table. These fabrics, intended as piece goods for making up, preserve the directional continuity of the design.

To rectify this disadvantage, cutters lose considerable time in making complicated selections and combinations of pieces. There is some unnecessary waste made, and the cutter may not obtain the correct degree of design continuity in the finished garment.

These problems do not exist where true jacquard fabrics and printed cloths are processed because the patterns are made so that the fabric can be cut from the top or the bottom. Knitted fabrics made on machines with pattern drums, pattern cylinders, or jacquard cards eliminate this problem; but these machines have few feeds compared

with pattern-wheel machines, and their speed is relatively slower.

New Method Is Easy To Work

A method has been worked out, however, where these reversible designs can be easily made on pattern-wheel knitting machines. The size and shape of the pattern areas from these machines depend on the number of needles in the cylinder, the number of feeds, and the number of cuts in the wheels. Rectangular pattern areas are usually obtained, and a reversible design poses a difficult problem.

The new method allows a reversible design to be constructed on a rectangular design area with a side step-up. The orginal area is broken into two reversible fields, identical in shape and size although opposed to each other in direction.

The pattern motif is constructed in one of these fields and then reversed in the other field. Because these reversible fields are well determined, the opposing motifs do not overlap.

To draw out a reversible-field design, first mark the original pattern area on squared paper. These pattern areas may step up to the right in degrees of less-than-pattern-area height, they may step exactly half way up the pattern, or they may step up more-than-half-the-pattern height.

How To Draw Field If Step-Up Is Less Than Half

If the step-up to the right is less than pattern-area height, divide each side of the original pattern area in half as shown on the opposite page. Mark these places *A*, *B*, *C*, and *D* in counterclockwise direction, with *A* on the right side of the area.

Make a mark on a square in counterclockwise direction to *A*, *B*, *C*, and *D* equal to half the number of squares the design is stepped up. Label these marks *E*, *F*, *G*, and *H*. Mark *E* will be above point *A*.

Connect *E* with *F* and *E* with *H*. Draw a parallel line to *F* and *G* through *B* and a parallel line to *G* and *H* through *D*.

The original pattern area is now divided into two pairs of parallelograms, two large ones and two small ones. If one of the small parallelograms is added to one of the large ones, a diagonally placed hexagon is obtained.

This hexagon is the reversible field, which is drawn with a broken line. The motif is then drawn in the reversible field.

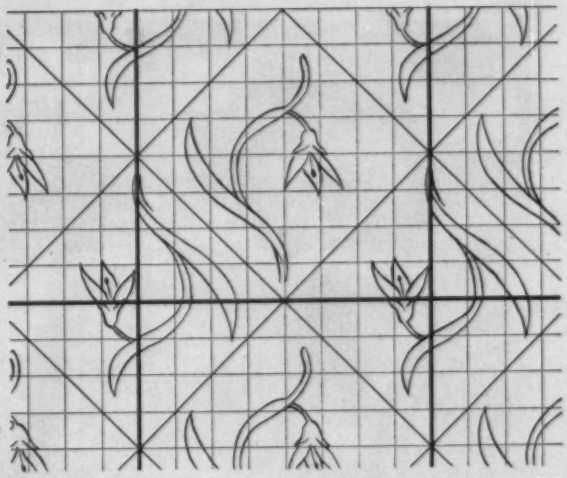
How To Draw Field If Step-Up Is More Than Half

Where the step-up to the right between the pattern areas is more-than-half-the-pattern-area height, divide each side of the original pattern area in half. Mark these squares *A*, *B*, *C*, and *D* in a clockwise direction, with *A* on the left side of the area.

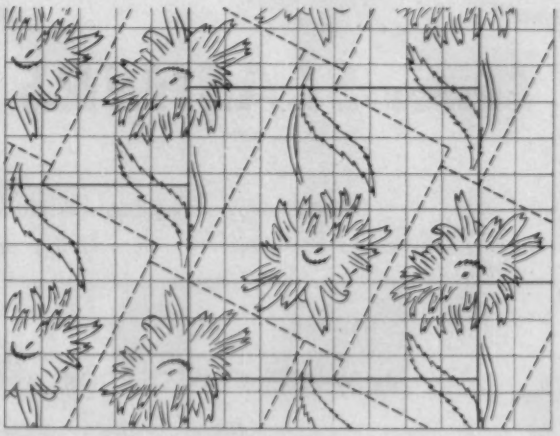
Half-the-area height minus the step-up is added to these marks in a clockwise direction. Mark these points *E*, *F*, *G*, and *H*, with *E* above point *A*. Connect *E* with *F* and *E* with *H*. Draw a parallel line to *F* and *G* through *B* and a parallel line to *G* and *H* through *D*.

Where the original pattern area is square, the reversible fields have right-angled sides. Where the original pattern areas are rectangles, the sides of the reversible fields do not stand at right angles. These reversible fields are based on rhomboid figures.

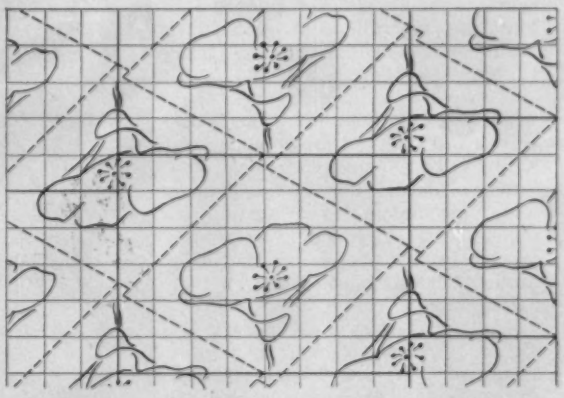
Reversible fields will enable the knitted-fabric designer to construct patterns with ease without overlapping the motifs and get perfectly balanced patterns. Reversible fields will also give the designer opportunities to create new fabrics for an ever-widening variety of knitted fabrics.



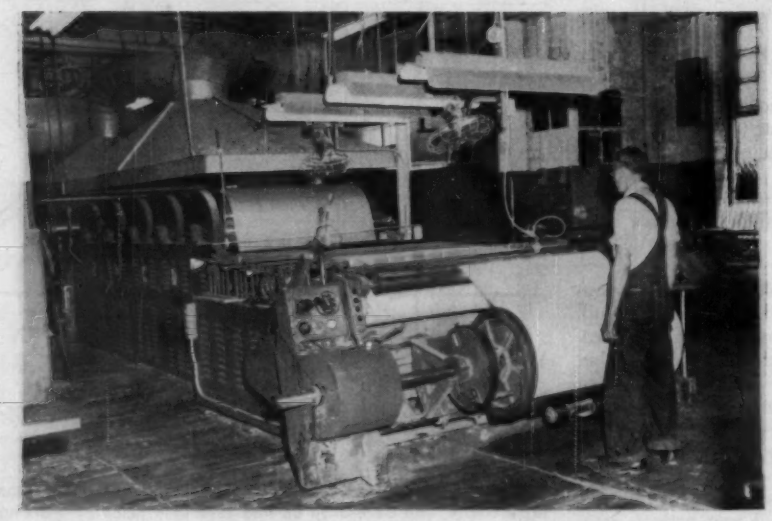
TRUE JACQUARD DESIGNS, where each pattern starts on the same course, can be broken up into reversible fields by marking each four sides of the area in half and connecting the marks to form a diamond.



MOTIFS are drawn in the reversible field, which is indicated by broken lines. The original pattern area, in bold lines, is 48x48 with a step-up to the right of 16.



RHOMBOID-SHAPED reversible fields are obtained from original pattern areas that are oblong. This design is based on an original pattern area of 48x36. The step-up to the right is 6.



NINE-CYLINDER Cocker slasher was installed new in 1955. Joe Viggins is the operator.

At Eagle & Phenix —

Fewer SLASHERS Give More Production

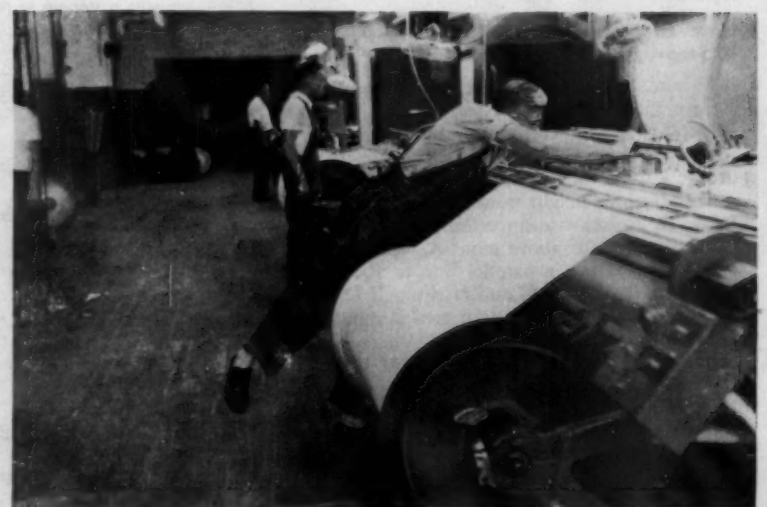
• The slasher room at Eagle & Phenix Div., Fairforest Co., Columbus, Ga., could not keep up with weaving. In remedying the situation, the mill cut the number of slashers more than half. Here's what was done—

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

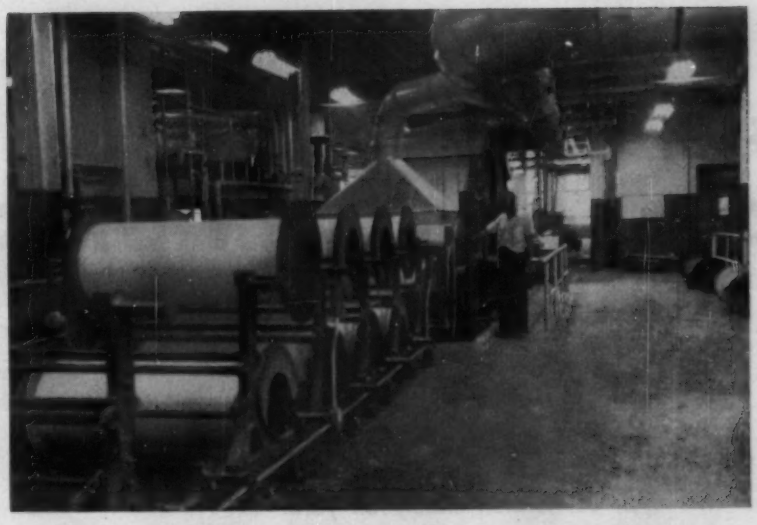
"We had seven slashers, and they were running seven days a week in an effort to keep the looms running six days," said S. E. Murdoch, superintendent of manufacturing at Eagle & Phenix Div., Fairforest Co., Columbus, Ga.

"Now we have three slashers. The slasher operating schedule is the same as weaving, and we have plenty of warps. The increased output was made possible by moving the slasher room from the top floor of the mill to the ground floor, rebuilding two slashers, buying one new slasher, and discarding the extra slashers and all the homogenizers."

The new slasher room at Eagle & Phenix has plenty of room for future expansion. It now houses all the size-preparation equipment as well as the slashers, will eventually include the drawing-in-room, and still has storage space for starch and yarn beams.



FLOOR SPACE is ample. The slasher tenders have plenty of room in which to work.



SIZE BOX is checked by Hayward Goins. All phases of slashing are closely controlled.

One New Slasher Installed

Included in the new equipment is a Cocker nine-cylinder slasher. This slasher has a Westinghouse drive, moisturegraph, and tension control. It operates at 90 to 95 yds. per min.

The other two slashers are Saco-Lowell three-cylinder slashers. They have Reliance three-stage drives. Normal operating speed of these slashers is 80 to 85 yds. per min. Two 30-in. drying cans have been added to each of the Saco-Lowell slashers behind the regular cylinders to provide added drying surface. These auxiliary cans are bypassed except when heavy sets are run or extra production is needed.

One of the slashers has a new ball-bearing creel. On this creel the sheets of yarn pass around revolving rods, and the yarn from each section beam is drawn into the size box without interfering with the other beams. Yarn rods and beam journals have ball bearings.

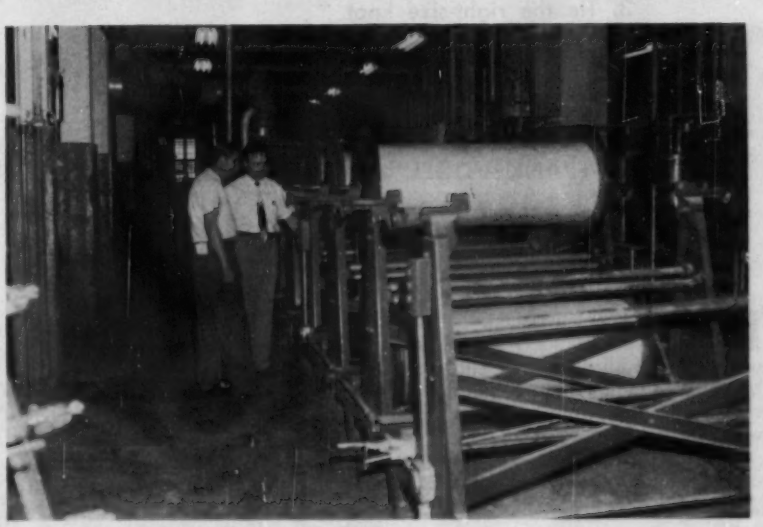
Size Kettles Are New

The slashers have 600-lb. synthetic-rubber-covered squeeze rolls. The pressure of the back roll is also controlled pneumatically. Size pickup is about 13% on average sets. Yarn stretch is held between 1 and 1½%.

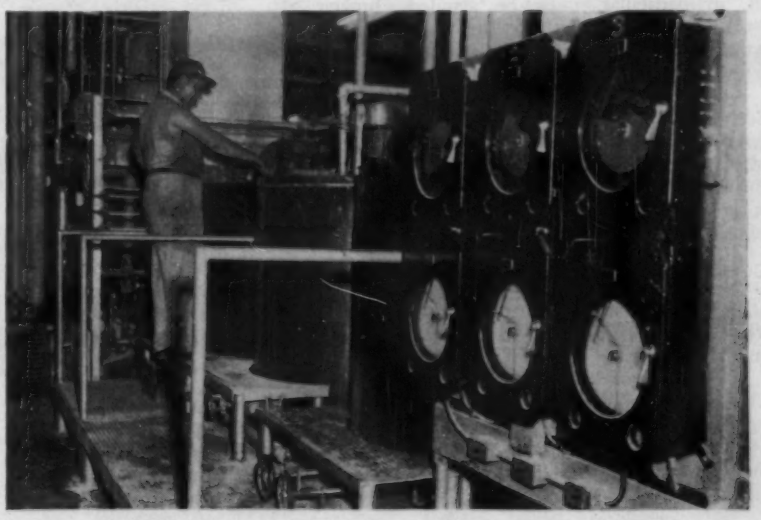
Size-preparation equipment is all new. Cooking and storage kettles are made of stainless steel. Temperature and viscosity of the size is closely controlled.

Warps are sized for a variety of fabrics, including corduroy, sateen, suiting, poplin, denim, suede, and upholstery material. More than one-half million yards of warp pass through the three slashers every week.

At Eagle & Phenix, it has been proved that efficient layout, good methods, and proper equipment can actually increase the total output with half the machinery and labor.



NEW CREEL is inspected by Superintendent Murdoch (right) and Assistant Superintendent Hubert Adams.



SIZE KETTLES are stainless steel. Contents of one of the kettles is checked by Russell Vinyard.

Four Ways To Improve Cotton PLY-YARN WINDING

Ply yarn wound on double-head spools will be defective if the winding isn't done correctly. Here are four ways to improve the quality of the finished yarn—

1. **Fill spools properly between heads**
2. **Set tension closely on yarn**
3. **Tie the right-size knot**
4. **Set cleaners to remove defects**

By FRANK VOGEL, Consultant on Statistical Quality Control

THE FIRST STEP in operating cotton ply-yarn winders is to be sure spools are filled properly between the heads. The traverse must be set so that the yarn fills evenly between the heads.

Two defects to avoid are (1) excessive cutting in, as shown in Fig. 1, and (2) overlapping, as shown in Fig. 2.

Both of these conditions cause yarn tangles and breaks in the next production operation. Very deep cutting in, in particular, must be avoided because yarn sinks into the soft-wound part of the cut-in section. Then it invariably becomes buried.

The tension on buried yarn usually becomes so great that the yarn breaks. And in addition, the broken end of yarn becomes buried so deep that the machine operator has to remove several layers of yarn before the broken end is recovered.

Cutting In Lowers Efficiency

Therefore there's lost production while the spool is straightened out, and a lot of yarn is wasted.

Cutting in and overlapping occur when spools are wound both horizontally and vertically. Overlapping is not as harmful as cutting in unless the yarn passes completely over one head of the spool. However, because broken ends occur in cutting in and overlapping, the yarn contains a large number of unnecessary knots.

So that the yarn is not interrupted in its passage to the spools, the spindles that hold the spinning bobbins must be in proper alignment with the thread guides on the stationary guide rail. If the thread guides are not plumb over the spinning bobbins, the yarn is pulled off the bobbins at an angle and the yarn is often broken.

Plumb Bob Aids Alignment

Fig. 3 shows properly aligned spindles in two-ply winding. For best alignment, check the alignment with a plumb bob. Coarse yarn can sometimes stand the strain of being pulled from out-of-plumb spindles, but fine yarn tends to break.

On wound ply yarn to be twisted, the tension must be uniform on every component end of yarn being wound. If the tension is not uniform, a corkscrew condition results in twisting. Corkscrewing is particularly bad when regularity of appearance is desired or when uniformity of strength is required.

Yarn is weakened by nonuniform tension since the corkscrewing end is longer than the other ends. For an illustration, take a wound three-ply yarn with a critical corkscrew appearance.

Corkscrewing Weakens Yarn

Place a portion of the corkscrewed yarn in a twist-testing machine, and remove the twist. Cut the three strands of yarn at the right-hand post with a razor blade; as the yarns are cut, grasp the released ends firmly.

Place a fingernail between each strand of yarn held at the other post of the machine, and slide your fingers along the strands to separate them to the end of the strands held in your right hand. The corkscrewed end of yarn will be longer than the other two yarn ends, as shown in Fig. 4.

Since the corkscrewed end is longer than the other two ends, the two shorter ones have to bear the strain when the ply yarn is placed in a strength-testing machine. Consequently the two normal ends rupture before the longer end is ready to bear its share of the load, and lower over-all yarn strength results in yarns with this defect.

Occasionally when the individual ends of a ruptured ply yarn are examined after they're broken in a strength-testing machine, the ends of the three component strands have a

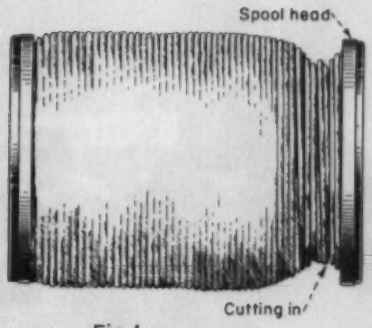


Fig. 1

CUTTING IN in winding causes tangles and yarn breaks in the following twisting operation.

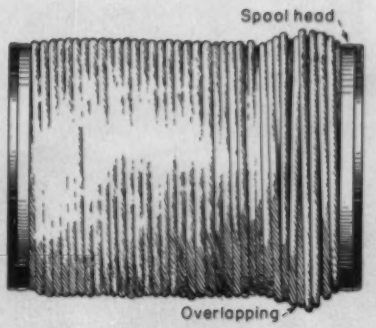


Fig. 2

OVERLAPPED SPOOL in winding, as in cutting in, is caused by an uneven traverse motion.

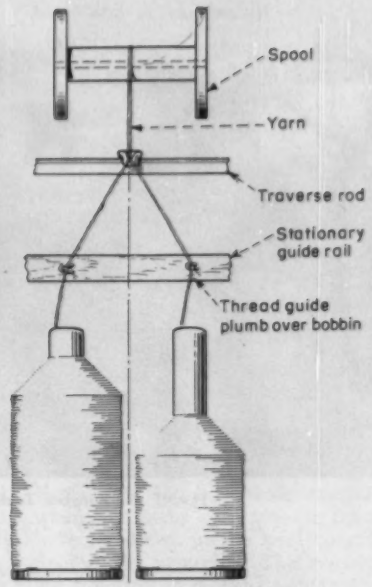


Fig. 3

CORRECT ALIGNMENT of spindles to thread guides prevents broken ends in winding.

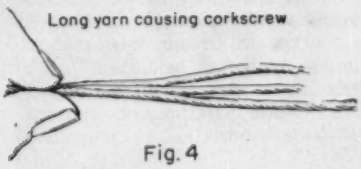


Fig. 4

CORKSCREWED END is longer than the other two ends in the three-ply yarn.

Fig. 5

UNEVEN TENSION on the three-ply yarn during winding caused this ragged break.

ragged appearance, as shown in Fig. 5.

Prevent Uneven Tension

The break is known as a one-two-three break and indicates uneven tension on different ends in winding. A check in a twist tester confirms the uneven tension condition. And very often, differences in strength of twisted ply yarn are a result of uneven lengths of the component yarns. Therefore tensions must be watched carefully.

When dead weights are used for tension, you should set up a schedule to examine them. Dirt often collects under the weights and interferes with proper tension control.

You should make experiments with different weights of tension disks to get the best tension for each yarn. When several yarns are wound in fairly close yarn numbers, for example 12s, 15s, and 18s, one weight of disk may be sufficient for all yarn numbers.

Avoid Bunched Knots

In some types of ply-yarn winding, operators must avoid bunched knots when an end breaks or a new bobbin is tied in.

To restart a winder after the ends are straightened out, the operator must be greatly skilled and care must be taken so that each of the multiple ends has the same tension.

Carelessness results in a corkscrewed portion of ply yarn and poor appearance of the yarn. Furthermore the yarn is weakened.

The size of the spinning bobbins is important when multiple ends are wound to be ply-twisted later. In order to get considerable space between each single knot on the component yarns, it's good practice to use bobbins of different sizes.

Wind From Uneven Bobbins

For example, in three-ply winding, bobbins of different sizes are used, as shown in Fig. 6. Therefore under normal running conditions, there will never be two single knots adjacent to each other. The knots throughout a spool are placed approximately as they're shown in Fig. 7.

But where bunched knots are permissible, it is more practicable to to use bobbins of the same size. This practice reduces the time of tying the knots.

The length of the tails of knots is important in yarn appearance; the length is particularly important when bunched knots are tied. All tails should be tied to a definite standard length, within narrow limits.

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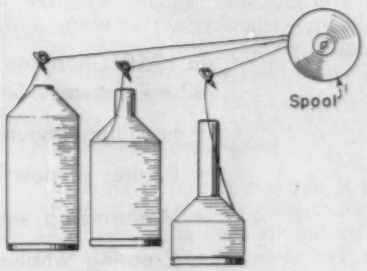

Fig. 6

SPINNING BOBBINS of uneven length prevent bunched knots in twisted ply yarn.

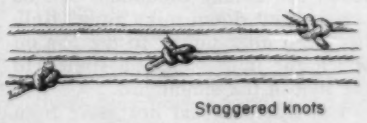

Fig. 7

STAGGERED KNOTS in the twisted ply yarn result in even appearance and strong yarn.

PLANT of Cherokee Textile Mills at Sevierville, Tenn., has over 200,000 sq. ft. of floor space.

How Cherokee Is Modernizing Its NEW SEVIERVILLE MILL

In 1955, Cherokee Textile Mills moved from Knoxville, Tenn., to Sevierville, 32 miles away. Settled in its new building, the mill is—

- **Installing Pneumafil**
- **Putting in new preparatory machinery**
- **Modernizing weaving**
- **Creating wholesome community relations**

By WILMER C. WESTBROOK, Assistant Editor, TEXTILE WORLD

CHEROKEE TEXTILE MILLS has been in its new location just a little over a year. The modern one-story brick, steel, and concrete building is located about one mile from Sevierville, Tenn. Through the plate-glass front of the mill's reception room, the Smoky Mountains can be seen a scant dozen miles away. Rolling green hills, similar to the one on which the mill is located, stretch to the foot of the mountains.

But Cherokee did not move from its old location in Knoxville, 32 mi. away, just to get a scenic background. A number of economic reasons were behind the move.

Although the mill was showing a profit, there was need of expansion and modernization in order to keep ahead of competition. The three-story mill building in Knoxville was in good condition but was not suited to rearrangement of machinery and streamlined operation.

For example, the looms were using 20-in.-dia. beam heads. To change to 24-in. heads would have involved moving the looms, and there was not enough available floor space to relocate all of them. Another drawback to continued operation in Knoxville was a high city tax on its property.

Sevier County Wanted Mill

While the management of Cherokee Textile Mills was considering means of bettering its position, the citizens of Sevierville were looking for a stable industry to bolster the economy of the community. The town and Sevier county were dependent on farming and tourist trade for most of their income.

Negotiations were begun between Cherokee Textile Mills and Sevierville in 1953, and a year later the citizens of the town approved the issuance of $2,700,000 in bonds to finance the construction of a plant. All the bonds were purchased by Cherokee Mill or its associates.

Plans for the plant were drawn under the supervision of Cherokee's architect, James T. Mitchell, to fit specific machinery installations, allow generous

working space, and give room for future expansion.

Daniel Construction Co., Greenville, S. C., built the 220,000-sq.-ft. plant; and installation of machinery was begun in August, 1955. First, some of the looms were moved and put into operation. Warp and filling were hauled to Sevierville by truck, and the cloth was then transported back to the mill in Knoxville for inspecting and shipping.

Machines Were Moved Intact

When about half the looms were in operation in the new mill, the cloth room and some of the preparatory machinery were moved. All machines were kept in operation except during the time spent in transit.

Clarkson Bros., Cowpens, S. C., moved the machinery. Spoolers and quillers were moved in sections; all other machines, including spinning frames and fly frames, were moved without dismantling. Some of the machinery was steam-cleaned and painted during the moving process. It took less than four months to complete the 32-mi. move.

Although all the machinery in the Knoxville plant was moved to Sevierville, some of it has since been rebuilt or replaced. Modernization of machines and methods is being done in all departments of the mill. Warehouse space has already been doubled, and a new warehouse for starch and supplies has been built.

For a project as big as moving a complete textile plant, all obstacles cannot be foreseen. Among the unpredicted things that developed at Sevierville was trouble with obtaining natural gas and suitable water.

With assurances that a pipeline would be extended from a gas line 8 mi. away, the mill installed a boiler that could be converted from oil to gas. Construction of the natural-gas line has been held up, and plans are being made to install a coal-burning boiler to furnish steam and heat for the mill.

Machines Were Realigned

Original plans were to obtain water from wells. Two wells were drilled, and the flow was adequate but the water was too hard for use without expensive treatment. A pipeline was built to the Little Pigeon River, almost a mile away; and water tanks and a filter plant were constructed.

Some unforeseen difficulties were also encountered in installing machines such as spinning frames and looms in the new plant. At Knoxville, the machines were mounted on wooden floors that had gradually settled, warped, and become slightly uneven. The shafts and bearings had become adjusted to the uneven footing of the machine frames.

Some realigning and replacing of shafts and bearings were necessary when the looms and spinning frames were set down on the level concrete floor of the new mill. The machines are mounted on resilient pads that absorb much of the vibration.

Here's Cherokee's New Setup

Cherokee uses 1⅛-in. staple Middling cotton. After opening, blending, and cleaning, the fiber goes through a gyrator into the two-beater pickers. The 15-oz.-per-yd. laps weigh 56 lbs. An overhead monorail system carries the laps to the card room.

Although some of the cards are old, they have modern features such as vacuum stripping and 15-in. sliver cans. The sliver lappers and ribbon lappers are arranged side by side, and the combers are placed on each side of the lappers parallel with the walls. The layout of these machines reduces the distance material must be moved from one machine to another.

Pneumafil Is Being Installed

A new Whitin high-speed comber in use at Cherokee places two strands of sliver in a can. This method reduces by one-half the number of cans necessary for drawing. Four new Whitin Super-Draft roving frames have just been put into operation in the mill. All the roving frames have the Adams stop mechanism to stop the frame when an end is down.

Pneumafil is being installed at Cherokee, 8 of the Roberts High Draft and 16 H & B spinning frames being already so equipped. All the 104 frames in the mill have Parks-Cramer traveling cleaners and ceiling cleaners.

Yarn to be dyed is wound directly on metal sleeves by two Barber-Colman automatic spoolers. About 5,000 lbs. of yarn is package-dyed per day in five Smith-Drum machines.

Two Barber-Colman high-speed warpers operate at 900 yds. per min. A record is kept of stops. For 40s yarn, 486 ends, 16,000 yds. per beam, the average is one end down per 2,000 yds.

The all-new slasher room at Cherokee has stainless-steel size-storage kettles and a Manton-Gaulin homogenizer. The homogenizer operates at 1,400-lb. pressure, and the prepared size is kept at a temperature of 204° F.

Traveling Loom Cleaners Used

The three Uxbridge Model B slashers operate at 50 to 70 yds. per min. The slashers have West Point three-stage drives and Griffin size applicators.

Loom patterns are drawn by a Barber-Colman drawing-in machine that will handle up to 25 harnesses and 4 banks of drop wires. Filling is wound on 8-in. quills by four Abbott quillers.

Weaving at Cherokee is done on 574 looms, including 105 Crompton & Knowles 4x1 box C-6 looms of 44-in. width. The balance are Draper K and XK Model looms of 40- to 42-in. width. Some of the looms are equipped to handle as many as three yarn beams. Speed of the looms is 163 to 166 ppm. Traveling cleaners keep the looms almost free of lint.

Hundreds of different patterns of fine dress and shirting fabrics, both white and colored, are woven to order in the weave room. The mill does no stock weaving; each yard of cloth is made to the customer's specifications. After shearing, burling, inspecting, and packing, the cloth is shipped direct to the buyer.

Mill Is Air Conditioned

A novel feature of the mill is the return air system for the air changer. The air-changing units are located in a penthouse on the roof; and air, conditioned by a 500-ton Carrier refrigeration unit, is discharged into the mill through metal ducts. The return air is carried through tunnels under the floor, up a shaft, and into the air chambers.

A hole in the floor under each loom and each spinning frame draws air from the room. This system insures even temperatures and relative humidity at all levels and also pulls the humidity down through the yarn. Much of the lint and fly is also drawn down into the tunnels and collected by screens.

When Cherokee Mills was moved, all the employees were retained; and provisions were made to transport them daily from Knoxville to Sevierville and return. About half the present work force of more than 500 still live in Knoxville, and many of them ride special buses that make the run for each shift.

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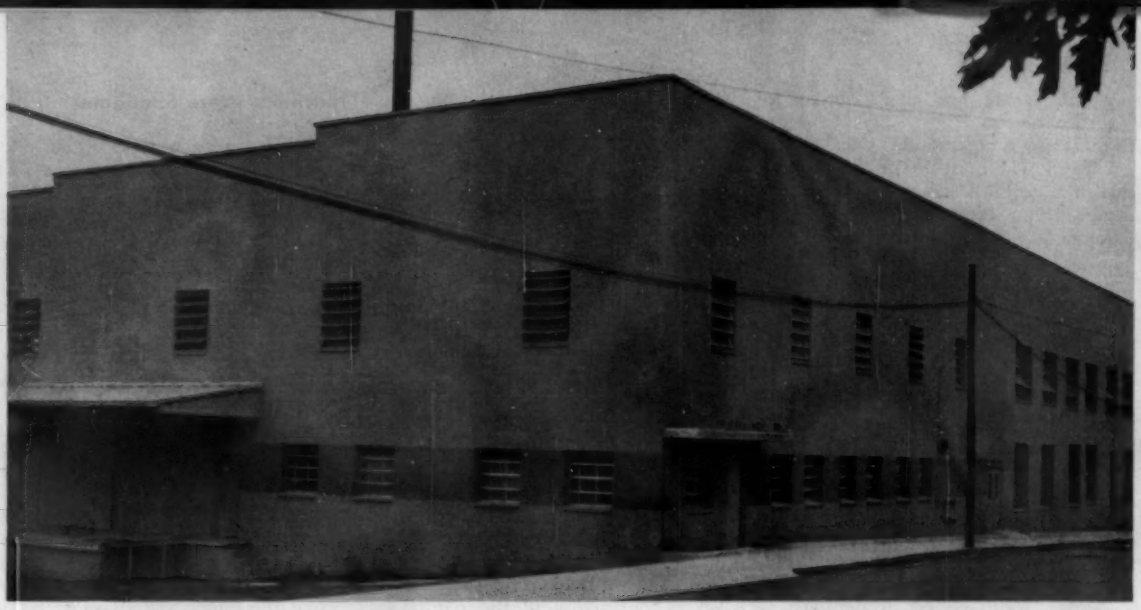

NEW ADDITION at Quality Mills is made from Solite block to give the plant a modern appearance. The original part of the mill, at the right, is veneered with the same block.

Quality Mills' New Sewing Room Uses WRITTEN STANDARDS

- A quality-control system that has kept returns to a negligible figure employs written standards for each operator and inspector.
- A quality-control supervisor checks part of each operator's production daily.
- Efficiency and quality are calculated each day and posted on the bulletin board.

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

BRANCHING INTO NEW LINES of children's underwear, Quality Mills, Inc., Mt. Airy, N. C., was forced to enlarge its manufacturing space 25%. A Solite-block addition was joined to the main plant to enlarge the sewing room. A quality-control system that incorporates written standards for each job is used in the new sewing room.

The new addition, which is two floors high, was built so that when the outside wall was knocked down, the existing floors were level with the new floors. The sewing room is on the top floor, and the sewing machines are laid out on the unit system.

Each unit produces one style of garments. These garments include briefs, T-shirts, athletic shirts, infants' shirts, and panties. There are about 25 machines in each unit.

How Panties Are Made

A typical unit is one used to make children's panties. After the cutting operation, the cut pieces of fabric are passed immediately to six Flatlock operators. The machines are arranged so that the Flatlock machines are close to the cutting tables, and the goods flow away from the cutting tables.

Gussets are put in during the first Flatlock operation. The sewn pieces are attached to one another, and the pieces fall into chutes beside the machines. Two girls take the sewn pieces from the chute and clip them apart.

Three Union Special 52800 split-tube machines are used to bind the legs of the panties, which again fall into chutes. One girl clips the binding and passes them back for binding the second part of the leg.

Three Flatlock machines are used next for the first side seam. One girl clips this work. Four Union Special 51400G machines put the elastic in the panties. The final side-seaming operation is done on three Flatlock machines. One girl clips this work.

After bar tacking on a Singer machine, the panties are inspected by two inspectors for holes, dirt, and faulty seaming. Two garments out of every dozen are inspected for skipped seams and needle holes.

Goods Are in 4-Doz. Lots

Most styles go through the sewing room in 4-doz. lots. Each lot is accompanied by a ticket on which the operator writes her number. A tally portion from the ticket is clipped for the work the operator does.

The number of machines to each unit is determined by the standard minutes to do the job. The standard minutes are determined by timestudies.

Each operator is provided with a set of written stand-

STEEL COLUMNS have replaced the wall of the original building. The new sewing-room floor, on the right, was laid level with the original floor.

SEWING MACHINES are laid out on the unit system. Each unit consists of about 25 machines. Thread racks are used to store yarn.

ards for her work. General requirements that are laid down for all operators include:

Check for needle holes and faulty stitching.

Use the correct thread and needle.

Pay careful attention to the maximum and minimum allowances.

Keep the machine clean and free from oil.

Run no work that is faulty from a previous operation.

Each operation has its own quality standards. The information on the standards sheet contains the type of operation, styles for the operation, stitches per inch, maximum thread waste per garment, maximum material waste per garment, and special instructions.

How Standards Are Set

The quality standards are set up with various tolerances, depending on the styles. Appearance and structure of the garment and ease of production are considered.

First, the garment must be made properly and have eye appeal. Second, the quality standard must be practical from a production standpoint since close tolerances that do not improve the garment tend to slow down production. By incorporating these two ideas, workable standards that are easily controlled have been established.

In addition to sewing-machine operators, clippers, inspectors, folders, and boxers have written standards. The standards are printed and bound in a cover.

Each line captain has the standards for the jobs in her unit, while the quality-control supervisor has standards for every operation. This girl moves around the sewing room and constantly inspects goods from the 140 machines. She checks six to eight garments from each operator, but she has no set route of inspection. Thread waste, material waste, and stitches per inch are also checked.

Inspector's work is checked three times daily. If faulty work is found, the quality-control girl checks more work and enters the number of faults on the inspector's or operator's production card.

A blue mark is made on the card if the work checked is perfect. The number of faults found are recorded in red. These cards are collected at the end of each day and tabulated during the next morning by two girls who do the job on a Monroe calculator and a National bookkeeping machine.

QUALITY-CONTROL SUPERVISOR moves around the room and checks six to eight garments from each operator daily for faulty work and for waste.

Results Are Ready Next Day

Individual operator's efficiency is calculated from the standard minutes for each job. These figures are posted on the bulletin board in the sewing room each day along with the number of faults found per operator.

The advantages of this system offset the cost of the extra work involved in calculating and inspecting. Quality and efficiency figures are available for every operator on the following day, and corrective steps are immediately taken to improve conditions not up to standard. The system also gives the foreman and the operators opportunities to plan and make adjustments.

Line captains are also responsible for the quality of work for their unit. They check 1% of each operator's production, and they schedule production on their line.

Inspectors and folders receive ½¢ premium for each fault found. This premium helps pay for the time spent in recording these faults. Inspectors are penalized 1¢ for each fault found at a later stage.

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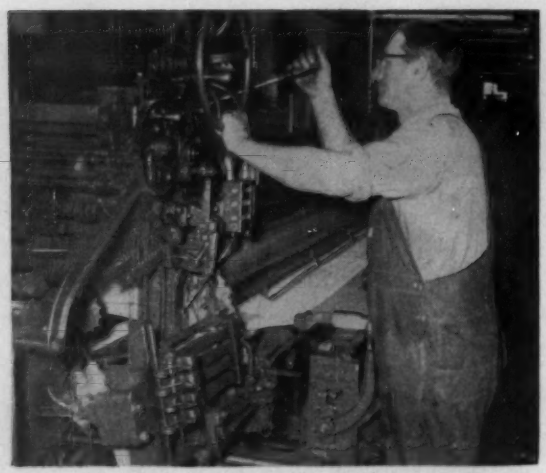
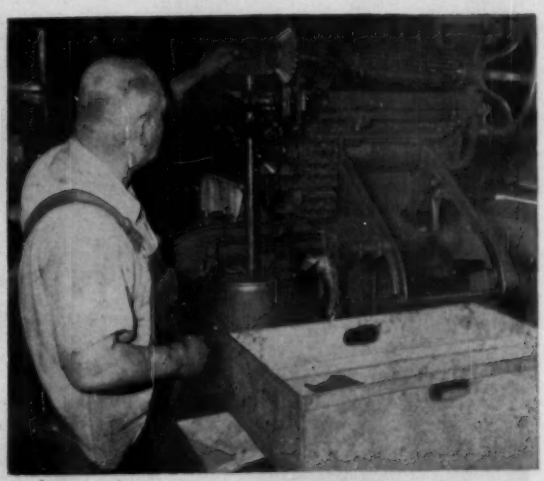


LOOMFIXER should give the head motion a systematic check before starting a new warp to keep off-quality cloth to a minimum.



CYLINDER GEARS should be checked periodically and replaced when teeth become worn to prevent harness skips in the cloth.

Quality-Control Methods Eliminate HARNESS SKIPS

Harness skips are a prevalent defect in woolen and worsted fabrics. These defects are best controlled by—

- **Preventive maintenance at the loom**
- **Periodic machine inspection**
- **Close checking of cloth woven**

By **EUGENE P. SCHREMP,** Consulting Editor, TEXTILE WORLD

IN WEAVING FANCY, HIGHLY STYLED WOOLEN OR WORSTED FABRICS, extreme caution should be taken to avoid harness skips. Patterns calling for a large number of harnesses and long pattern chains should be given special attention.

It is best to set up a quality-control system to keep cloth from being woven with harness skips. Looms running at high speed on a three-shift basis require careful checking to insure that skips do not run through one or more cuts.

The appearance of harness skips will vary with the type of weave and the cause of the skip. The skip itself is caused by one or more harnesses raising or lowering other than in the proper sequence.

Skips extending completely across the fabric are usually caused by faulty head motion or pattern chains. If they are spaced evenly, the pattern chain is probably at fault and should be checked. Skips at random intervals are usually caused by faulty head motions.

Check When New Warp Is Started

Skips that do not extend the full width of the cloth may be caused by failure of the harness wires or straps to operate properly. Loose harness wires or any condition that interferes with proper movement of the harness may cause skips. With some weaves, a harness skip may show on the face and not on the back, or vice versa. In checking the cloth, the back as well as the face should be inspected.

Harness skips appearing at intervals of from one yard to a number of yards apart are sometimes difficult to see at the loom. Frequent checking is the best method to avoid this type of harness skip. This careful checking is especially important in weaving the first part of a new warp.

Quality control should begin by making certain the loomfixer has checked the head motion thoroughly before the weaver is allowed to start weaving a new warp.

All harness wires and straps should be checked to be sure that each harness operates without interfering with the harness on either side.

The harnesses should be lowered. This lowering may be accomplished by using a screw driver to turn the vibrator gears and causing the harness to drop.

Replace Comb If Teeth Are Broken

At this point, the teeth on the top and bottom cylinder gear may be observed. If any teeth are worn to a

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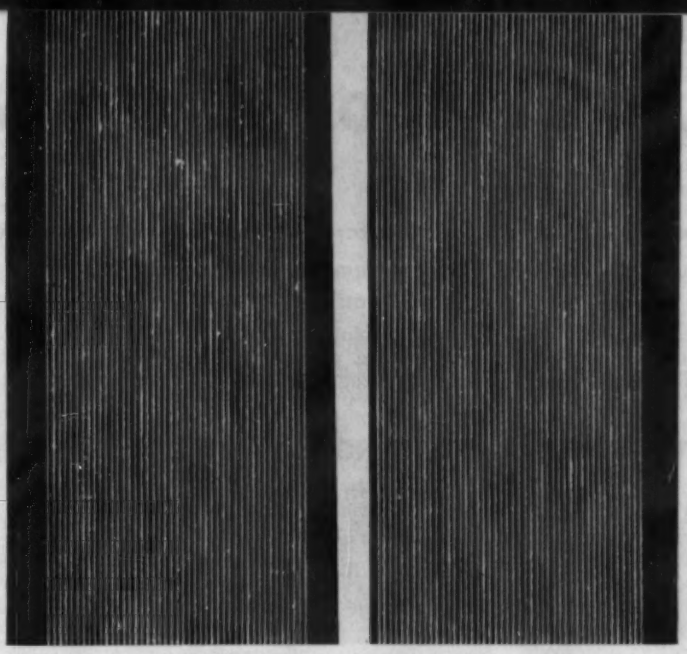


CARDING AT 100 LBS. PER HR. produced the yarn on the left, which compares favorably in appearance, strength, and evenness with the yarn on the right, produced at 9.6 lbs. per hr. While production at this level is not practical, the experimental yarn shows that increased card production is possible with no loss in quality.

How To Increase CARD PRODUCTION

An extensive 16-mill cooperative research study on increasing cotton-card production reveals that—

- Cotton-card production can be increased nearly 60% above present mill rates with no mechanical changes
- Integrated speeds and settings throughout the card are the key to better and faster carding
- Higher production rates can be achieved with no loss in yarn quality
- Use of the Abington roller doffer makes possible production rates above 25 lbs. per hr.; production reached 100 lbs. per hr. experimentally

By

J. F. BOGDAN
Director of Processing Research

HENRY K. C. WOO
Assistant to the Director of Processing Research

Department of Textile Research, School of Textiles, North Carolina State College

A TEXTILE WORLD Report to Mill Management

INTEGRATED SPEEDS and SETTINGS

Are Key to Faster Carding

• Research on increasing cotton card production points to the need for optimum integration of carding elements for good carding

Continuation of research on carding by the Department of Textile Research, School of Textiles, N. C. State College, has pointed the way to increasing carding production without adversely affecting yarn quality.

Studies with 16 cottons ranging from a waste mix to a long-staple Egyptian cotton that was spun into

THESE INTEGRATED SPEEDS AND SETTINGS . . .

Card	Saco-Lowell (1919)	Whitin (1952)
Clothing		
Lickerin (points per sq. in.)	32 (8 x 4)	36 (9 x 4)
Cylinder	100	110
Doffer	110	120
Flats	110	120
Speeds		
Lickerin (rpm.)	800	750
Cylinder (rpm.)	165	165
Doffer (rpm.)	Mill production + 50%	
Flats (ins. per min.)	3	3
Doffer comb (cycles per min.)	Depends on production	
Settings (thousandths of inch)		
Feed plate to lickerin	7	7
Mote knives to lickerin		
Top	7	7
Bottom	7	7
Top mote knife to feed plate (ins.)	1 1/4	3/4
Bottom mote knife to bars (ins.)	1 1/8	1 1/4
Top edge of back plate to flats	10	22
Mote knife angle (degrees)	30	27

Settings with and without continuous stripper	Saco-Lowell With	Saco-Lowell Without	Whitin Without
Lickerin screen to lickerin			
Back	68	17	64
Middle	34	17	29
Front	10	17	17
Lickerin to cylinder		7	
Back knife plate to cylinder			
Top		10	
Bottom		10	
Flats to cylinder			
Back		7	
Intermediate		7	
Intermediate		9	
Intermediate		10	
Front		12	
Flat stripping comb to flats		15	
Front knife plate to cylinder			
Top		22	
Bottom		22	
Doffer to cylinder		5	
Doffer comb to doffer		17	
Cylinder screen to cylinder with and without flange			
Back	29	29	29
Center	187	68	68
Front	375	187	187
Continuous stripper			
Setting (ins.)	1 1/4	—	—
Speed (rpm.)	1,750	—	—
Type of lickerin screen	Bar	Bar	Bar
Type of cylinder screen	Bar	Bar	Bar

. . . INCREASED PRODUCTION AN AVERAGE OF 52%

	Card Production—Lbs. per Hr.				Count x Strength Product		
Mill	Mill production rate	N.C.S. carding Mill settings Mill rate	N.C.S. carding N.C.S. settings Increased rate	Production increase (%)	Mill carding Mill settings Mill rate	N.C.S. carding Mill settings Mill rate	N.C.S. carding N.C.S. settings Increased rate
H	11.5	12.8	18.8	46.9	2,183	1,956	2,093
I	7.6	7.7	12.1	57.1	2,046	2,072	2,200
J	5.0	4.8	7.4	54.2	2,740	2,795	2,832
K	18.2	15.2	24.3	59.9	2,214	2,107	2,128
L	9.1	8.6	13.2	53.5	2,343	2,152	2,264
M	7.0	6.4	12.0	87.5	2,106	2,213	2,247
N	7.5	7.3	10.8	47.9	2,110	2,307	2,358
O	8.5	9.6	14.5	51.0	2,000	1,889	1,921
P	5.2	7.1	8.3	16.9	1,854	2,199	2,203
Q	7.5	9.1	13.4	47.3	2,392	2,090	2,248
R	10.4	11.2	18.5	65.2	1,550	1,566	1,652
S	11.5	14.1	20.0	41.8	1,484	1,396	1,409
T	25.5	25.1	38.0	51.4	1,762	1,987	1,938
U	10.0	11.5	16.5	43.5	2,165	2,341	2,324
V	12.5	14.5	23.5	62.1	2,386	2,555	2,653
W	13.4	14.6	20.5	40.4	2,180	2,242	2,234

80s yarn indicated that an average increase in card production of nearly 60% is possible and practical. In all cases, yarn strength was either increased or not adversely affected; and in many cases, waste was reduced in spite of the higher production rate.

The research brought to a conclusion the eighth year of carding studies at N. C. State aimed at reducing neps [TEXTILE WORLD, May, '52, p. 91], reducing waste [TEXTILE WORLD, March, '55, p. 87], and increasing production. The high-production carding project was supported cooperatively by 16 Southern cotton mills, and the cottons of these mills were used in the study.

How the Study Was Made

In this study, N. C. State researchers followed their previous pattern of basing all comparisons on actual mill yarns and actual mill production and waste data. In all cases, yarns were first spun from mill-produced laps following as closely as possible the mill's own spinning organization.

The results of these tests established the "laboratory factor," or the degree to which yarns spun under controlled conditions in the laboratory were better (or worse) than yarns spun under mill conditions. All subsequent yarns and yield figures were then compared with figures established in the laboratory factor tests to determine the amount of real improvement, if any, made in the experiments.

Cottons used were shipped to N. C. State in lap form to eliminate variables in opening.

As in previous research, virtually every speed and setting in the card was varied one at a time from below normal to above normal while all other settings remained normal. The results were evaluated in the light of increased card production with no sacrifice in quality or waste. Optimum individual speeds and settings thus determined were then combined in extensive tests. Some variations in combinations followed, and the final recommended speeds and settings were developed.

In all cases, laps were carded for 2 hrs. and sliver from the last half hour only was spun into yarn as representative of the yield of average carding conditions. In each of thousands of experiments, stock was carried through to yarn so that final appearance, evenness, and strength—the factors that pay off to the mill—could be measured.

This report does not discuss the results of all tests but rather only those that developed new information pertinent to increasing card production.

Production Peak Will Vary

The research does not attempt to define what particular production rate any mill should or can reach in carding a particular cotton for a particular type of yarn. Production increases achieved depend largely on present production rates and other local conditions.

The study does show, however, that mills can card at higher rates, in general, than are now in widespread use and that with proper coordination of carding elements, remarkably good yarn can be produced at greatly increased production rates. It is shown, for example, on later pages that a carding production rate of 100 lbs. per hr. yielded sliver that could be spun into yarn not greatly different from yarn spun from sliver produced at less than 10 lbs. per hour.

The point made by these experiments is that if good yarns can be produced at a tenfold increase in production, surely yarn can be produced at a mere 50 or 100% increase in production that is equal to that produced at "normal" carding rates. At the same time, even a 50% increase in carding rates can yield highly significant savings in equipment, floor space, and overhead.

Still another point made by the study is that high production rates can be achieved and will yield good yarns, but machinery-design improvements must be forthcoming before production can be multiplied to the degree shown possible.

This study, as well as previous work, again points to the conclusion that there appears to be an optimum degree of integration between elements in the card. While this point may not have been reached in this study, we seem to be closer to it; and we have learned a bit more about the enigma of cotton carding.

For mills to apply these results successfully, four points are stressed.

First, good carding is based on good cards; and it is essential to any improvement in carding results by any method that cards be properly maintained and set.

Second, this study and previous work have yielded a set of integrated speeds and settings that will produce better results in carding. Because the elements of the card must be integrated in their operations, mills will profit nothing by "trying one speed or setting at a time to see what happens."

For a proper evaluation, it is recommended that at least three cards be used and that all recommended speeds and settings (with qualifications as stated) be used in coordination with each other. To speed up the lickerin only or to change one setting only, to cite some examples, is likely to produce worse results than normally.

Third, it must be remembered that the speeds and settings should not be taken too literally. These recommendations produced optimum results at N. C. State College under N. C. State's particular conditions and in processing particular cottons. It is quite unlikely that the exact speeds and settings will yield equal or good results at every mill.

The recommendations, therefore, provide only a starting point from which carders should depart as they see fit to get the best results under their particular circumstances. Mills that have been most successful in applying N. C. State's previous recommendations on carding were those that "played around" with the basic recommendations to suit their own needs.

Finally, it is urged that if mills attempt to put these recommendations on trial, careful records should be maintained as to what is done and what happens. N. C. State researchers and field-service men stand ready to assist mills in making trials and evaluating results, but progress can be made much faster if adequate data are available on trials made.

Final Answer Still To Come

It is not claimed that the conclusions of this study are final or infallible. They are not only subject to modification in particular mills but are subject to modification as more of the million or so possible combinations of card speeds, settings, and directions are studied in other research. In eight years of study, only the surface of this vast, unknown area has been explored.

It is claimed that mills can card better and faster tomorrow than they did yesterday; and the conclusions of this report provide a starting point that has led to successful results in a number of mills.

	Carding waste	
Point difference N.C.S. carding over mill settings	N.C.S. carding Mill settings Mill rate (%)	N.C.S. carding N.C.S. settings Increased rate (%)
+137	5.05	4.72
+128	5.50	5.78
+ 37	7.89	6.10
+ 21	4.83	3.93
+112	5.67	6.30
+ 34	7.17	6.10
+ 51	6.74	6.91
+ 32	6.61	4.66
+ 4	4.96	5.32
+158	6.11	6.55
+ 86	13.21	12.63
+ 13	6.58	8.36
− 49	4.97	4.67
− 17	4.96	4.73
+ 98	4.72	5.51
− 8	4.65	5.39

50% Production Increase Yields Good-Quality Yarns

The data and yarn-appearance photos on these pages resulted from experiments on increasing mill-production rates by 50% on three cottons for a waste mix, a 1-in. Middling carded yarn, and a 1 1/8-in. combed yarn. In all cases, the 50% production increase was achieved with the recommended speeds and settings for high-production carding with no significant adverse effect on yarn strength, evenness, or appearance.

Increased Production	Delivery and Wastes in Pounds and Percentages							Yarn Tests		
50% (A)	Sliver	Cylinder	Doffer	Flats	Fly	Scavenger	Total	Skein break	Yarn No.	Number x strength
Mill settings (lbs.)	18.00	0.11	0.05	0.41	0.56	0.02	19.15	151	8.1	1,223
N.C.S. processing (Yield—%)	94.00	0.57	0.26	2.14	2.92	0.11	100.00			
50% (B)										
N.C.S. settings (lbs.)	19.95	0.16	0.04	0.49	1.10	0.03	21.77	174	8.1	1,409
and processing (Yield—%)	91.64	0.74	0.18	2.25	5.05	0.14	100.00			
Regular mill yarn (C) (Yield—%)	93.70	0.02	0.13	3.25	2.90	....	100.00	209	7.1	1,484

1-in. cotton, strips, and noil — Card running time, 2 hrs.

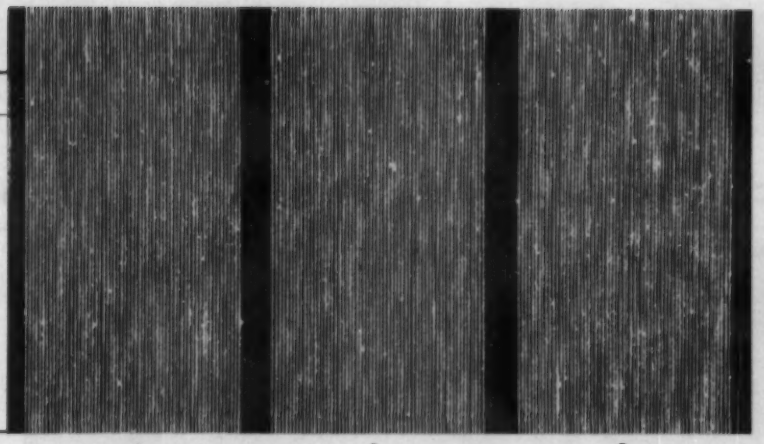
Increased Production	Delivery and Wastes in Pounds and Percentages							Yarn Tests		
50% (A)	Sliver	Cylinder	Doffer	Flats	Fly	Scavenger	Total	Skein break	Yarn No.	Number x strength
Mill settings (lbs.)	19.13	0.28	0.02	0.25	0.29	0.01	19.98	167	12.2	2,037
N.C.S. processing (Yield—%)	95.75	1.40	0.10	1.25	1.45	0.05	100.00			
50% (B)										
N.C.S. settings (lbs.)	18.76	0.23	0.03	0.32	0.34	0.01	19.69	182	11.5	2,093
and processing (Yield—%)	95.28	1.17	0.15	1.62	1.73	0.05	100.00			
Regular mill yarn (C) (Yield—%)	93.64	....	4.15	....	2.21	....	100.00	185	11.8	2,183

1-in. M cotton — Card running time, 2 hrs.

Increased Production	Delivery and Wastes in Pounds and Percentages							Yarn Tests		
50% (A)	Sliver	Cylinder	Doffer	Flats	Fly	Scavenger	Total	Skein break	Yarn No.	Number x strength
Mill settings (lbs.)	11.20	0.20	0.12	0.25	0.15	0.01	11.93	80.4 (lbs.)	29.8	2,396
N.C.S. processing (Yield—%)	93.87	1.68	1.01	2.10	1.26	0.08	100.00			
50% (B)										
N.C.S. settings (lbs.)	10.78	0.19	0.02	0.26	0.32	0.01	11.58	78.6	30	2,358
and processing (Yield—%)	93.09	1.64	0.17	2.25	2.76	0.09	100.00			
Regular mill yarn (C) (Yield—%)	95.32	0.72	0.09	2.75	1.12	....	100.00	70.8	29.8	2,110

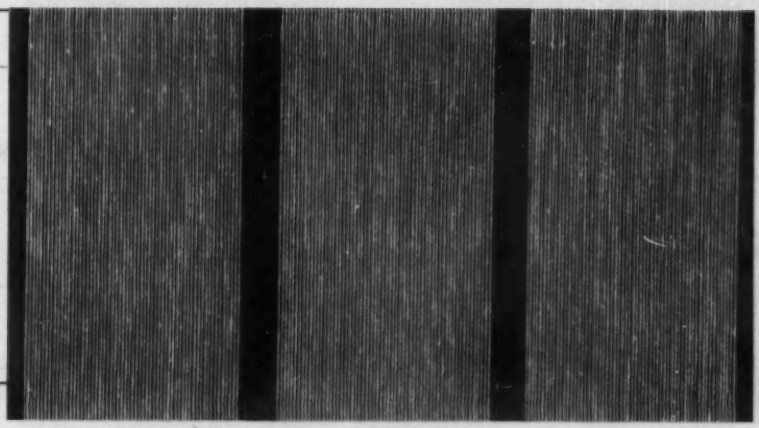
1 3/32-in. SM cotton — Card running time, 2 hrs.

Twist	Actual TM	Variation (%)	Integrator
10.9	3.83	131	19.3
11.7	4.11	122	18.1
11.4	4.28	134	23.4



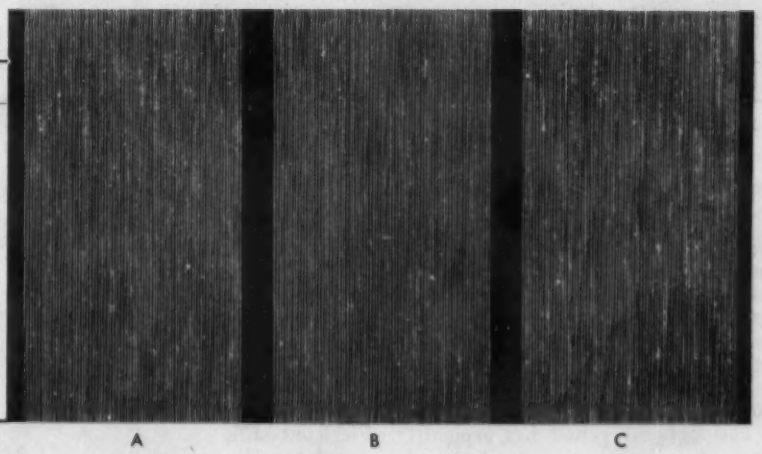
A B C

Twist	Actual TM	Variation (%)	Integrator
11.6	3.32	90	12.6
12.2	3.60	87	12.7
11.9	3.46	101	19.8



A B C

Twist	Actual TM	Variation (%)	Integrator
20.3	3.72	94	13.9
19.5	3.56	97	13.8
19.5	3.57	124	20.0



A B C

These Individual Speeds and Settings Will Improve Production . . .

In most cases, the recommended speeds and settings for high-production carding follow the pattern of those established in previous studies on nep reduction and waste reduction. However, the changes from these previous recommendations are based on experiments in which the results indicated a change was desirable for the particular objective of increasing card production. Some of these experiments are discussed below.

Closer Back-Plate-to-Cylinder Settings Improve Appearance

Back-plate-to-cylinder settings, 0.001 in.	Delivery and Wastes in Pounds							Yarn Tests		
	Sliver	Cylinder	Doffer	Flats	Fly	Scavenger	Total	Skein break	Yarn No.	Number x strength
22T, 22B (lbs.)	40.29	0.45	0.04	0.90	0.53	0.03	42.24	384	6.7	2,573
(Yield—%)	95.38	1.07	0.09	2.13	1.26	0.07	100.00			
10T, 10B (lbs.)	43.10	0.44	0.04	0.94	0.61	0.05	45.18	396	6.9	2,732
(Yield—%)	95.40	0.97	0.09	2.08	1.35	0.11	100.00			
10T, 90B (lbs.)	44.57	0.46	0.04	0.97	0.52	0.03	46.59	404	6.7	2,707
(Yield—%)	95.66	0.99	0.09	2.08	1.12	0.06	100.00			
250T, 10B (lbs.)	44.30	0.40	0.04	1.09	0.59	0.05	46.47	406	6.9	2,801
(Yield—%)	95.33	0.86	0.09	2.34	1.27	0.11	100.00			
68T, 10B (lbs.)	43.91	0.42	0.04	0.91	0.55	0.06	45.89	396	7.0	2,772
(Yield—%)	95.68	0.92	0.09	1.98	1.20	0.13	100.00			

1 1/16-in. Middling cotton Card running time, 2 hrs.

BACK-PLATE-TO-CYLINDER SETTING of 10T—10B yielded the best quality yarn at production rates in the vicinity of 20 lbs. per hr.

Progressive Flat Settings Reduce Waste

Flat-to-cylinder settings back to front	Delivery and Wastes in Pounds and Percentages							Yarn Tests		
	Sliver	Cylinder	Doffer	Flats	Fly	Scavenger	Total	Skein break	Yarn number	Number x strength
7, 7, 7, 7, 7 (lbs.)	40.88	0.42	0.05	0.90	0.54	0.03	42.82	327	7.2	2,354
(Yield—%)	95.47	0.98	0.12	2.10	1.26	0.07	100.00			
7, 7, 9, 10, 12 (lbs.)	45.04	0.41	0.03	0.79	0.47	0.02	46.76	322	7.3	2,351
(Yield—%)	96.32	0.88	0.06	1.69	1.01	0.04	100.00			

1 1/16-in. Middling cotton. Flat speed, 3 ins. per min. Card running time, 2 hrs.

Cooperative Research In Action

The research behind this report was conducted over a one-year period at the Department of Textile Research, School of Textiles, N. C. State College, under an arrangement whereby the results were exclusively the property of supporting mills for a period of one year after completion of the study.

This one-year period has expired, and the results of the project are being made public in this report.

The mills that cooperatively supported this project were:

Avondale Mills
Borden Mfg. Co.
China Grove Cotton Mills
Cross Cotton Mills Co.
Deering, Milliken Research Corp.
Fieldcrest Mills
Highland Cotton Mills, Inc.
Joanna Cotton Mills Co.
Linn-Corriher Mills Co.
Morgan Cotton Mills, Inc.
Quaker Meadows Mills, Inc.
Shuford Mills, Inc.
Swift Mfg. Co.
Washington Mills Co.
Waverly Mills, Inc.
West Point Mfg. Co.

In addition to those changes discussed with supporting data, the following changes from previous practices are recommended:

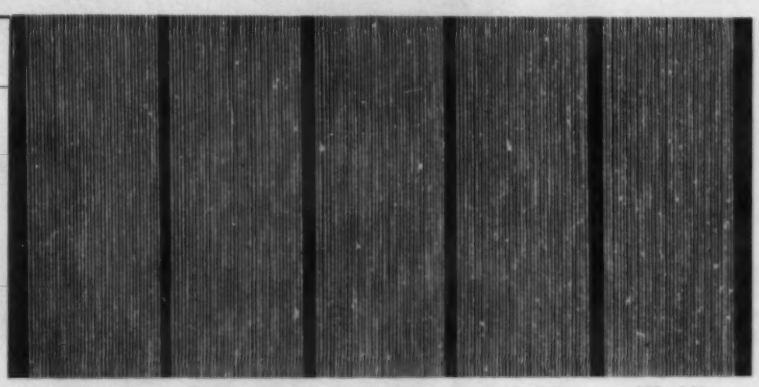
. . . Flat speeds should be increased from 1.7 to 3.0 ins. per min. This increase will still result in a saving in flat waste at high production rates because of the greater poundage put through the card per cycle of flats revolution. At higher speeds, however, the higher flat speed yielded better-quality yarn. Actually, at double the production rate, the higher flat speed is equal, relatively, to the lower flat speed at lower production rates.

. . . The settings of the front knife plate were changed from the previously recommended 34-34 to 22-22 (thousandths of an inch). The closer settings of the front knife plate tend to enclose the air within the carding system to a greater degree. In general, a close, uniform setting of 10-10 produced the best yarn strength and appearance; but because of mechanical difficulties encountered in making this setting, a 22-22 setting is suggested.

. . . Close and uniform settings of 10-10 for the back plate contribute to better control of fiber and air currents around the cylinder.

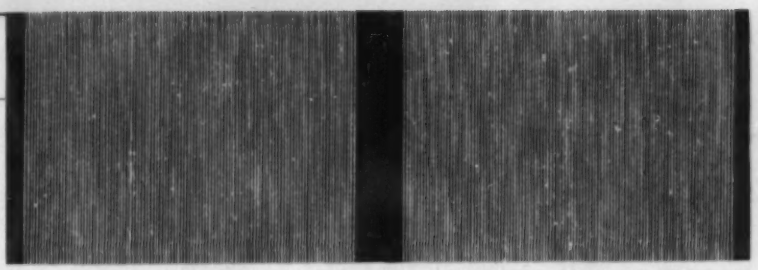
. . . Progressively increasing flat settings of 7-7-9-10-12 from back to front appear to control incoming air at the back of the card and to break up heavy lumps of stock effectively. The progressive settings also reduced flat waste, increased sliver yield, and improved yarn appearance in the experiments conducted. There was no pronounced effect on yarn strength.

Twist	Actual TM	Variation (%)	Integrator
11.4	4.40	79	12.8
11.1	4.23	97	13.5
11.1	4.29	81	11.3
11.3	4.30	81	11.9
11.0	4.16	99	13.5



22T—22B 10T—10B 10T—90B 250T—10B 68T—10B

Twist	Actual TM	Variation (%)	Integrator
11.1	4.14	88	12.0
11.3	4.18	85	13.2



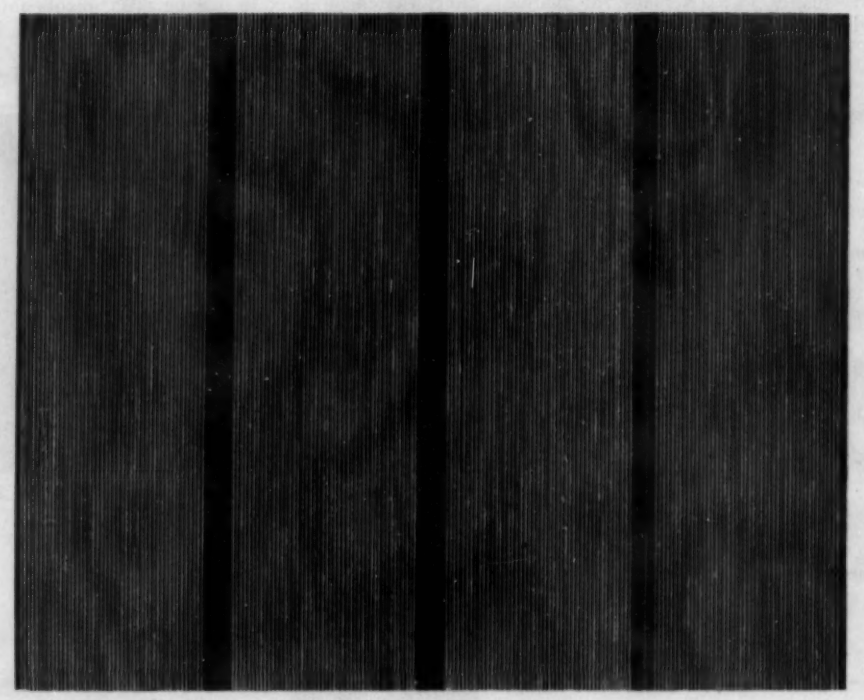
7, 7, 7, 7, 7 7, 7, 9, 10, 12

These Are the Cottons N. C. State Worked With

Mill	Staple length (ins.)	Grade	Mill	Staple length (ins.)	Grade
H	1	M	P	1 1/8	....
I	1 1/32	BM	Q	1 1/16	BSL
J	1 7/16	Fully good to extra	R	1 1/32, 1 1/16	Card strips
K	1 1/16	SM	S	1	Raw cotton, strips and noil
L	1 1/16	SM, M	T	15/16	LM
M	1 1/16	M	U	1 1/32	SLM
N	1 3/32	SM	V	1 1/16	M
O	1 1/16, 1 3/32	M	W	15/16, 1	M, SLB

Carding Rate Does Not Materially Affect Quality

This series of yarn-appearance boards and data shows results of processing the 1-in. Middling cotton of one mill at various carding rates ranging from 9.6 to 100 lbs. per hr. In all cases, N. C. State's recommended



Carding rate (lbs. per hr.)	9.6	18.5	32.2	45.6
Yarn-test results				
Skein break	189	185	192	189
Yarn number	12.5	12.4	11.9	12.1
Number x strength (skein)	2,358	2,288	2,290	2,285
Twist	11.8	12.0	12.0	11.8
Actual TM	3.34	3.41	3.48	3.39
Variation (%)	64	68	73	78
Integrator	11.6	11.7	12.0	12.5
Statistical analysis—Number x strength				
Standard deviation	113	67.5	37.9	75.2
Standard deviation of mean	25.3	15.1	8.47	16.8
Coefficient of variation (%)	4.79	2.95	1.66	3.29

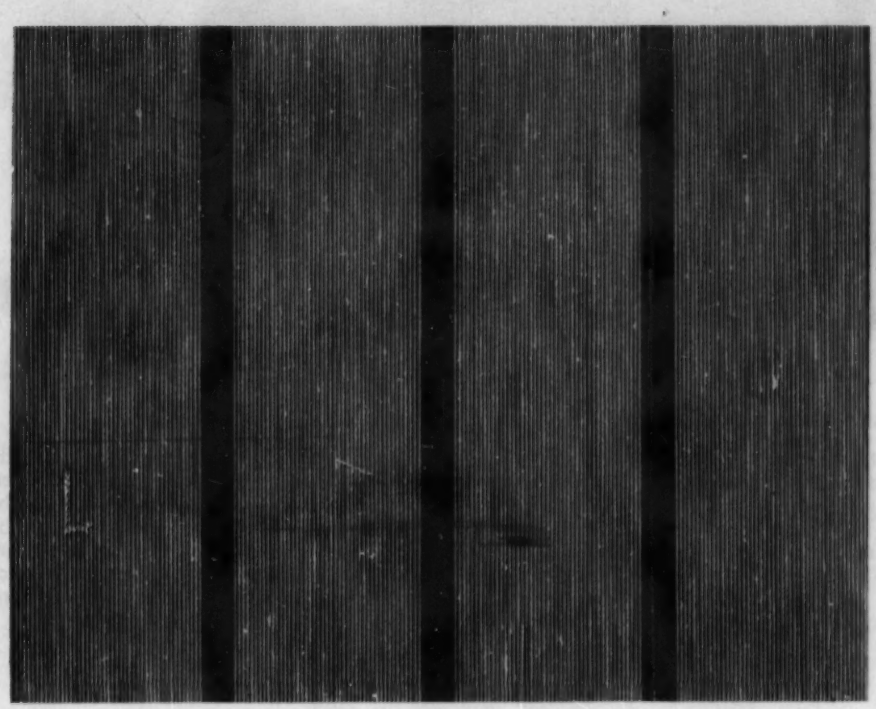
1-in. Middling cotton. 165-rpm. cylinder speed. 750-rpm. lickerin speed.

speeds and settings and the Abington roller doffer were used.

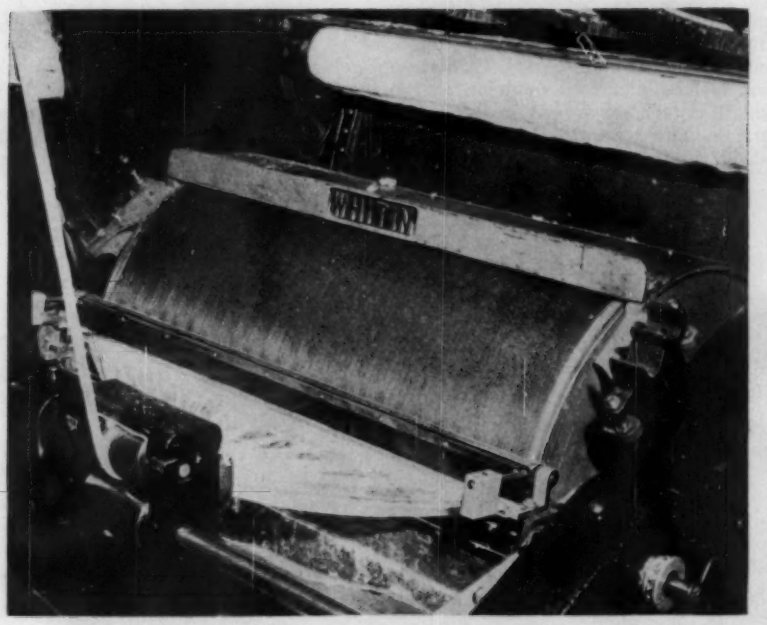
These results point out that carding rates need not materially affect yarn quality. It will be noted that regardless of production rate, count-strength products and appearance do not vary widely although evenness appears to drop.

N. C. State researchers do not recommend that mills attempt to card at levels of or even approaching 100 lbs. per hr. because of mechanical limitations.

It is evident, however, that yarn spun from sliver produced at a rate ten-times normal is at least not ten-times worse. Thus, it follows that mills should be able to increase carding rates to yield significant savings without affecting yarn quality.



59.6	70	80	100
186	189	188	203
12.2	12.0	11.6	11.5
2,274	2,264	2,185	2,334
12.4	11.6	11.8	11.1
3.55	3.35	3.46	3.27
73	74	83	75
12.7	13.3	13.8	12.9
59.2	67.3	69.3	74.2
13.2	15.0	15.5	16.6
2.60	2.97	3.17	3.18



Roller Doffer Breaks Production Barrier

It was evident early in the research on high-production carding that the reciprocating doffer comb would have to be improved upon or replaced to obtain production rates in excess of 25 to 30 lbs. per hr. N. C. State engineers attempted several designs of dynamically balanced combs but dropped all such efforts upon learning of the development of the Abington roller doffer, now offered under the name Rolaslivup.

On the 16 cottons used in this research, the Abington doffer did not affect nep counts adversely. Yarns spun from sliver produced with the doffer had about the same strength and appearance as yarn spun from sliver produced with a conventional comb.

The doffer did not cause any problems in maintenance or operation of the card; and, experimentally, production rates of 100 lbs. per hr. were achieved through its use.

A Note on This Research . . .

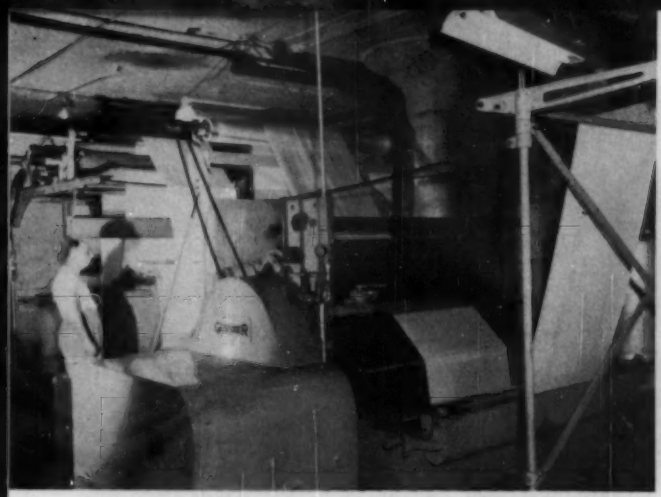
It is fully anticipated that publication of this research report will lead to considerable controversy, as have the previous reports on carding research at the School of Textiles, N. C. State College. The work will be alternately praised and damned when mill men get together. Some will report that the recommendations will not work; others will quietly go ahead and make them work.

It is not the purpose of this report to imply that carding rates in the mill can reach the spectacular levels reached in the laboratory. These levels, however, provide a goal for which mills can strive; and in their doing so, progress in improving carding rates will be achieved.

The real purpose of this research at the mill-operating level—indeed, the purpose of any research—is to develop an attitude toward trying new ideas, toward constant improvement of everyday practices, toward doing the job better tomorrow than it was done yesterday. If such an attitude can be broadly developed in mills, the most beneficial results may appear in areas other than carding.

As for the validity of these and the results of previous research, N. C. State researchers no longer inquire at length if mills have been successful in applying the results. The reason is that their successful application is a real and accepted fact in scores of mills.

It is not implied that all mills are or should be equally successful, as local conditions vary too widely. It is clear, however, that the job can be done better; and the Department of Textile Research of the School of Textiles, N. C. State College, is ready to assist any mill in a sincere effort to solve its carding problems.



THOROUGH IMMERSION and good expression of excess liquor in this pad provide even application of finishing material.

FRED HESS, a Schwarzwaelder executive, watches a shantung drapery fabric pass through the treating range.

CUSTOM FINISHING
At Schwarzwaelder Co.

• Applying special finishes to relatively small yardages of goods is a large part of the business of sponging concerns today. Here's how Schwarzwaelder Co., Philadelphia, finishes decorator and apparel fabrics with Syl-mer, a silicone-base water repellent.

By **ROBERT W. PINAULT,** Assistant Editor, TEXTILE WORLD

ACTING as a sort of super finisher between the mill and the cutters keeps Schwarzwaelder Co. busy applying special finishes to small lots of a variety of fabrics.

Primarily a sponging plant, the 106-yr.-old concern was originally set up to shrink woolen goods prior to their manufacture into garments. Both the Londen (cold-water process) and steam-shrinking methods are used, according to the type of fabric and the cutter's requirements.

Gradually, as improved finishes were developed, the plant added the necessary equipment to take care of the customers' demands. Other fibers came into the picture as the synthetics developed, and the range of fabrics also increased to include decorator materials. But the processing is still confined to finishing, mostly in small lots for special purposes.

Today Schwarzwaelder does considerable amounts of water-repellent finishing on both decorator and apparel fabrics.

The process involved in applying Syl-mer, a silicone-base water and stain repellent, provides both the necessary shrinkage and resistance to staining in one run. The goods are run from a truck into the Syl-mer solution that is carried in a stainless-steel box below the pad. Thorough saturation of the fabric is accomplished by as many dips in the solution as needed, and excess liquor is squeezed out in the heavy air-set pad. Pressures and liquor concentrations are adjusted for various fabrics so that the dry add-on of water repellent will be 1½ to 2%.

From the pad the goods fall into a J-box that has a conveyor-type bottom composed of slats. If the goods pile up in the J-box, the conveyor can be advanced manually to prevent fabric from toppling over onto the portion being drawn into the dryer. Complete elimination of tension is important in this process if the necessary shrinking is to occur.

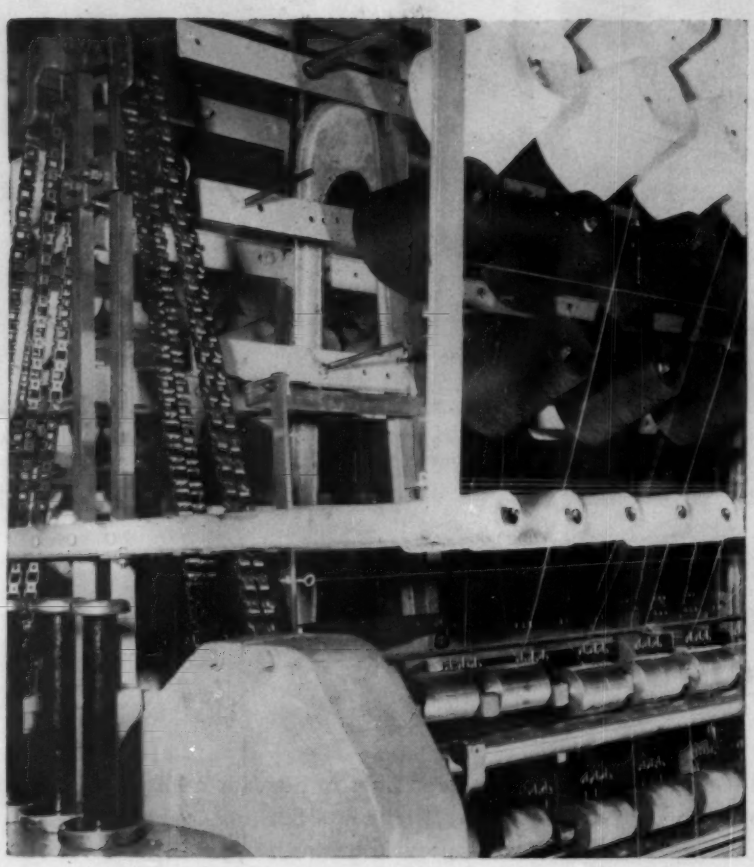
The dryer is a ten-pass conveyor type in which cloth is fed to the top conveyor and drops successively from one conveyor to another until it is delivered from the bottom.

Curing Closely Controlled

Schwarzwaelder varies the temperature in the dryer to suit the fabrics going through. For woolens, the dryer is set for a maximum of 275° F. This temperature provides an adequate cure without damaging the wool.

After curing and drying, many fabrics are ready for a final examination and shipping. However, all woolens are given a run through a semidecater to get the proper surface and hand.

The Syl-mer process produces a soft hand with a smooth surface. Fabrics treated by this method resist water-borne stains and retain their finish through repeated dry-cleanings.



CHAIN LINKS on the left side of the twister stop the top rolls at intervals. Twister bobbins are enameled to prevent warping.

Supreme Pioneers in FINE NOVELTY YARNS

Formed to supply a demand for fine novelty yarns, this subsidiary of Supreme Knitting Machine Co. develops new yarns for knitting and weaving with equipment that includes—

- **Twisters with various attachments**
- **Winders with long traverse**
- **Bobbins that are enameled**

By JAMES H. BLORE, Associate Editor, TEXTILE WORLD

SUPREME NOVELTY YARN CO., Ozone Park, N. Y., opened its doors last year to produce fancy yarns for knitters and weavers. The mill specializes in making fine novelty yarns for knitters who have fine-gauge machines.

Many fine novelty yarns do not give the desired effect when they are knitted into fabric, and the mill has a sample department where special yarns are developed. These yarns are then knitted on machines at Supreme Knitting Machine Co. so they can be quickly evaluated.

Novelty yarns that are made include boucle, chenille, nub, splash, ratine, and slub. Each twister spindle can handle yarn from five packages; and yarns that are run include cotton, acetate, rayon, Orlon, nylon, and metallics. Finished yarn sizes range from 1,500 yds. per lb. to 9,000 yds. per lb.

The raw yarn arrives at the plant on cones or tubes. Filament yarns are wound from cones to tubes on Foster 102 winders. Staple yarns on cones and filament yarns on tubes are placed directly on the creel.

TWISTER CREELS are made to hold five yarns for each spindle. The yarn here, with alternate black and white nubs, is made from four yarns.

SAMPLE TWISTER with 12 spindles on each side has a splash attachment and a nub attachment. Bobbins are handled in self-stacking trays.

Whitin twisters with novelty attachments are used for the initial twisting operation. These twisters have 3- and 3½-in. rings. The spindle speed for most yarns is about 4,000 rpm.

Nub yarns are made with the aid of a nub attachment on the left side of the frames. This attachment consists of a chain with high lugs that move a clutch on the top-roll shaft to stop the top roll at intervals. A splash attachment on the right side of each frame slows the top rolls for other fancy effects.

One popular nub yarn consists of a 300-den. bright rayon, a 20s white rayon staple, and two 30s black rayon staple yarns. The filament rayon is fed between the top rolls, which are stopped at intervals according to the setup of the chain links.

The white staple yarn is fed from cones on the creel over a wire to the bottom roll and through the center of the nubbing bar. One black yarn is creeled under the white staple yarn and fed to the same roll as the white staple yarn but under the nubbing bar and to the right of the white yarn. The result is alternate black and white nubs.

All twister bobbins are enamel-treated to prevent warping. Each bobbin holds 5 to 6 oz. of yarn, and bobbins are handled in self-stacking trays.

The bobbins are not quite filled in this first twisting operation, but the second twisting operation fills the bobbin. Plans are being made to do the binding on 4½-in. rings so that five packages from the first operation can be twisted on one bobbin in the final twisting operation.

After initial twisting, all yarns are twist-set in an H. W. conditioner box. The box is preheated for 15 mins. to reduce condensation, and the yarn is treated for an hour at 80% r.h. to set the twist. Highly twisted yarns are treated for 1½ hrs.

Many fancy yarns are then put on a plain twister to bind the slubs or nubs and keep them from sliding. The nub yarn with the alternate black and white nubs receives a binding of 8 tpi. with 30s black rayon staple yarn. These yarns are again twist-set in the conditioner.

Winders Have 7-in. Traverse

Foster 102 winders have been fitted with a 7-in. traverse to make longer cones for multiple-feed machines. These cones weigh up to 3½ lbs. The yarn is waxed, treated with emulsion, or processed without wax or emulsion on the winder.

The slub catchers are set to the size of the slub, and extra-large slubs are removed.

All cones are wrapped in waxed paper. Each lot has a style number, and a reeling is retained of each lot. Twisted yarns are packed in small 2-ft. square cartons that can be handled easily without bruising the yarn. These cartons are sealed with glass-fiber tape to eliminate wire strapping.

The twister in the sample room has only 24 spindles, but it is fitted with both nub and splash attachments. Testing equipment in this room includes a twist tester, grain scale, wrap reel, and universal yarn balance for direct denier reading.

Novelty-yarn designer Clark Collins makes an analysis of yarns sent by customers for reproduction. He figures out the machinery settings, identifies the fiber, and tests the yarn number. Timestudies are then taken to determine costs.

The cost of novelty yarns deters many manufacturers from making these yarns; but Supreme expects that many new fields will be opened up with the introduction of new yarns that will be used in shirts, dress goods, and upholstery.

Points To Watch In Knitting POWER NET

Better-quality elastic fabric can be knitted if careful attention is given to certain related techniques. Here are some valuable pointers on—

- **How to test yarn and fabric for stretch**
- **How to measure tension on the beams**
- **How to deal with imperfections**

By LEOPOLD E. LICHT

POWER NET is an elastic fabric knitted on raschel-type warp-knitting machines and used primarily for foundation garments. Other names used to describe this fabric are K-loom fabric, Kidde net, and two-way stretch fabric.

The fabric is made from covered rubber thread and the knitting yarn. The rubber thread is cut or extruded in various shades from cream to blue-white, depending on the shade required in the finished fabric.

There is little to choose between the two types of rubber thread. The extruded rubber is round, and the cut rubber is made in the form of a sheet and then cut to the required gauge. More and more manufacturers are switching to extruded rubber, and perhaps in the years to come only extruded rubber will be used.

The bare rubber thread is divided into three classes: high-modulus rubber, medium-modulus rubber, and low-modulus rubber. The higher the modulus, the greater the elastic recovery of the thread.

Extruded bare Thread			Cut bare Thread		
Gauge	Yds. per lb.	Area in sq. ins.	Gauge	Yds. per lb.	Area in sq. ins.
30	900	0.000871	36	1,048	0.000772
37	1,375	0.000573	42	1,424	0.000567
44	1,940	0.000405	50	2,021	0.000400
50	2,500	0.000314	58	2,725	0.000297
65	4,220	0.000186	70	3,965	0.000204
75	5,625	0.000139	85	5,855	0.000138
90	8,100	0.0000966	100	8,080	0.000100
100	10,000	0.0000786	112	10,120	0.0000798

COMPARISON TABLE shows the equivalent of extruded rubber and cut-rubber threads with the yield and area.

What Rubber Gauge Means

The gauge of rubber thread is the number of ends per 1 in. For example, 50s gauge means that 50 rubber threads, and no more than 50, can be placed flat in 1 in.

Bare rubber thread, irrespective of type, must be covered and beamed before it can be knitted successfully. These two operations are the most important ones. Lack of control will cause imperfections in the finished product.

There is a definite relationship between the gauge of bare rubber and the yarn number used in the covering process. A common covering for 65s extruded rubber is 50s cotton, two ends 100s cotton, or 150-den. rayon for the top and bottom covering yarns. A 90s extruded rubber might be covered with 75- or 100-den. rayon for the top and bottom yarns.

Up to the covering operation, quality is little affected by humidity because the rubber passes through a coagulating bath and other baths to wash out and neutralize acid that has been used in the coagulating bath. The temperature, however, has a great effect on quality. Depending on the method of extrusion, about 85° F. is the most desirable temperature.

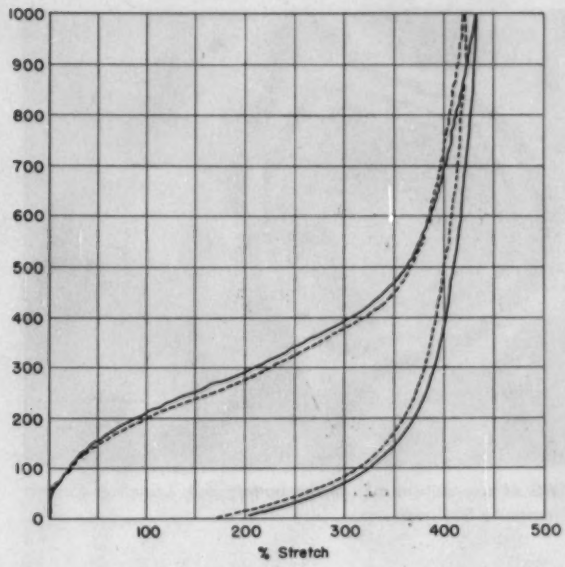
Best Condition Is 65% R.H.

The effect of relative humidity on fabric testing, warping, knitting, and covering of rubber thread is very important. The most suitable conditions are 65% r.h. at 72° F.

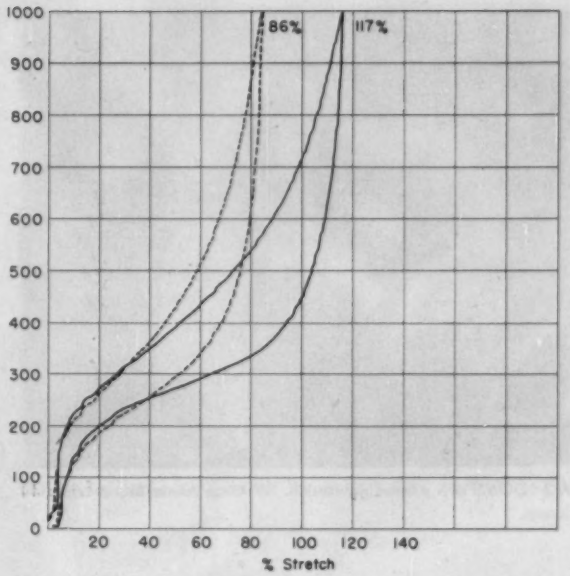
The stretch of the finished fabric is determined during the covering operation, and the relative humidity should be constant at all times.

To illustrate the effect of relative humidity, two lots of rubber threads were supplied independently to a mill on commercial beams. One complete set of rubber beams was tied in and knitted. The second set, which originated from a different supplier, was tied in on the same machine and knitted. The setting of the machine, knitting yarn, tensions, temperature, and humidity remained the same throughout the whole operation. The fabrics were then sent to the dyers and finished at the same time.

An analysis of the finished fabric showed a sizable difference in the modulus curves of the two fabrics although



MODULUS CURVES of two bare rubber threads made by different manufacturers are similar in appearance.



MODULUS CURVES of fabric made from the same two rubber threads show a sizable difference in appearance.

the modulus curves of the bare rubbers are reasonably similar. The load-supporting characteristics of the two samples varied only slightly through 40% stretch: then they varied widely.

Conditions during the covering operation were found to vary considerably. Although the gears that control the delivery of the bare rubber thread were identical in both cases, the actual delivery to the machine varied as a result of the different conditions during the covering operations.

How To Test Fabric

To test the rubber fabric, condition the sample several hours at 65% r.h. and 70° F. Cut 14x3½-in. specimens from the conditioned sample. Place two marks 10 ins. apart on each specimen. Unravel the fabric, if possible, or cut the width to exactly 3 ins.

Clamp the specimen to a stretch-testing machine. Stretch the specimen twice at a moderate rate to 90% of its ultimate elongation. During the third test, record the pull at each 20% elongation up to the ultimate elongation and at 20% intervals on the unloading.

Average the results obtained on the loading and unloading from the three specimens and make a graphic picture to show the complete stress-strain curve for the sample.

Raschel Machines Are Used

Power net is made on raschel machines of 24, 36, 48 and 56 gauge. These machines are equipped with special cams to accommodate the sinker bar, a device that permits the automatic let-off of the rubber beams, and strong guide bars to take care of the greater strain on the rubber.

The guides should be leaded one in, one out to follow the method of threading the machine. Leading the machine in this way makes threading easier and eliminates mistakes in threading.

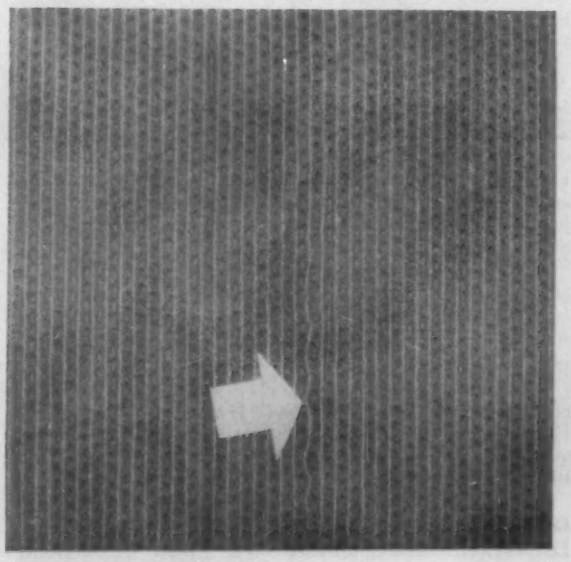
Because the wear and tear on the needles is greater than for other types of fabrics, a needle with a heavier hook stands up much better. Manufacturers of raschel machines often recommend a 36-gauge needle with a 30-gauge hook for a 36-gauge machine.

Needle life depends on the speed the machine runs. On late-model machines, which run at 600 rpm., the complete set of needles is replaced every three or four months. However, the cost of replacing the complete set of needles is negligible when compared with the extra production.

Condition the Warps

Many mills making power net buy their covered rubber thread already warped on beams. These warps should be conditioned when received. Take the rubber warp from its packing case, and leave it upright for a few days on the floor under mill conditions. This procedure is particularly important during winter when the outside

CONTINUED ON PAGE 218



CORKSCREWS are the most costly of all imperfections in power net. They are caused by unbalanced yarn.

X-2 LOOMS are producing sateen. Weaver Annie Stone tends 44 looms.

FLAG of one upright quill in the battery calls Loomfixer Corbert Simpson to the loom.

Moultrie Concentrates on OSNABURG and SATEEN

• Although producing only two styles of fabrics at present, the weave room of Moultrie Cotton Mills, Moultrie, Ga., is adaptable to any weave from draperies to duck. Its looms feature Draper-Diehl drives, center forks, ratchet take-ups, and clock-spring tops.

By **WILMER C. WESTBROOK,** Assistant Editor, TEXTILE WORLD

At Moultrie Cotton Mills, Moultrie, Ga., 74-in. cloth is being woven on 40-in. looms. The cloth is osnaburg and is woven double-width on Draper E-model looms. The two-harness weave is drawn in four harnesses, and the cams are built to weave both selvages on the right-hand side of the loom. After weaving, the cloth is spread out full width for packing.

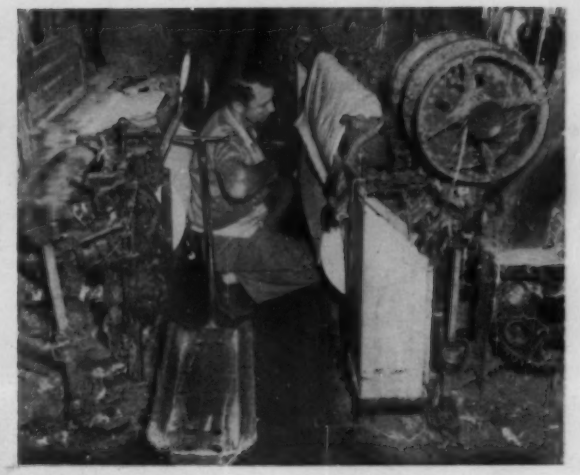
The 40-in. looms have motor drives with disk friction clutches. The loom speed is 160 ppm. The take-up motion is the high-roll worm type, and the let-off motion is Roper. A cam-actuated whip-roll vibrator arm and drag rolls are used.

The looms are equipped with Holcombe-type filling feelers and Stafford thread cutters. Harnesses are lifted by Dwight spring tops. Four-bank electric warp stop motions are used. The warp-yarn beams have 26-in. heads. The filling forks are single.

In addition to the E-model looms, Moutrie also has 200 Draper X-2 looms of 46-in. width. The X-2 looms have Draper-Diehl drives and operate at 172 ppm. These looms have a high-roll ratchet take-up coupled with an improved Bartlett let-off motion.

WARPS are tied with a Barber-Colman portable tying-in machine by E. C. Simpson.

FILLING for sateen is quilled. Batteryhand June Carnes places 500 quills per hour.



TRUCK especially designed for the aisles is used by Cloth Doffer W. M. Tucker.

At present the X-2 looms are weaving a five-harness warp-face sateen. Drag rolls are not used for this weave, but the vibrating whiproll came is used. The sateen is woven with a tape selvage.

All the X-2 looms are equipped with clock-spring tops and K. A. four-bank electric warp stop motions. The center forks have the simplified XD-type knock-off. These looms have midget filling feelers and Stafford thread cutters.

Endless Leather Checkstraps Used

Endless leather checkstraps are used on all the X-2 looms. Asked if these straps gave any trouble when looms are started following week-end shutdowns, P. L. Epley, weaving overseer, said:

"No. We do very little adjusting of checkstraps in starting up. Each shuttle is pulled from the box and lubricated when the looms are stopped for the week end. We bring the humidity and temperature up to standard before starting the looms and have few slam-offs after starting."

Warp tying is done at Moultrie with a 56-in. Barber-Colman portable tying-in machine. Two racks are used so that a warp can be made ready while another is being tied. A sateen warp, 15s yarn, will run about seven days in the loom.

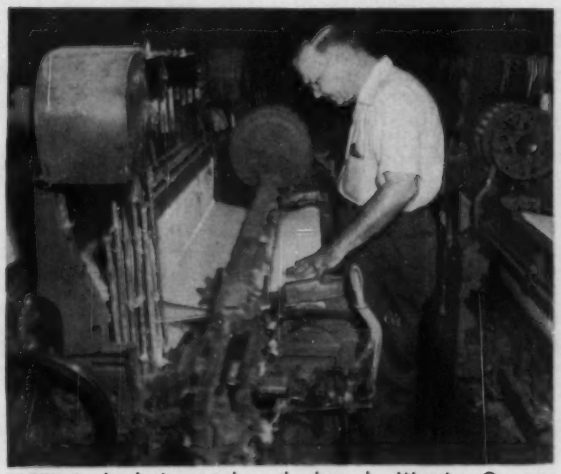
Cloth Is Graded at Once

Cloth is doffed in 250- to 400-yd. rolls and is carried directly to the cloth room to be inspected. The cloth doffers use a truck that can be pulled in the weave aisles, and the roll of cloth is placed on the truck direct from the loom.

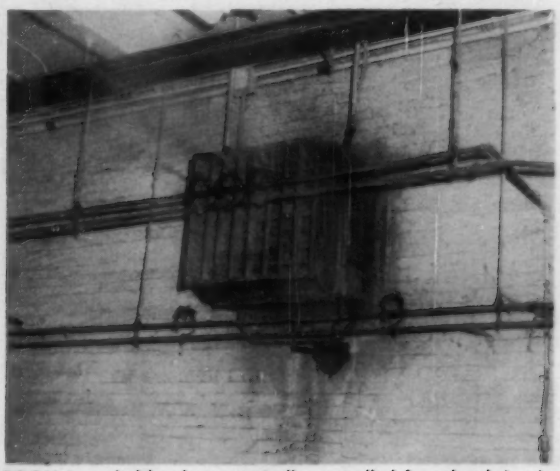
Constructions of the two styles of cloth woven at this writing are: 46-in., 80x56, 1.42 sateen made with 15s warp and 9½s filling, and 74-in., 40x26, 1.14 osnaburg.

The loomfixers have 100 looms to repair and maintain. Weaver jobload on sateen is 44 looms. The jobloads for batteryhands are established on the basis of 500 quills per hour. Running time of the filling is checked regularly to keep these jobs in line. The sateen filling is quilled.

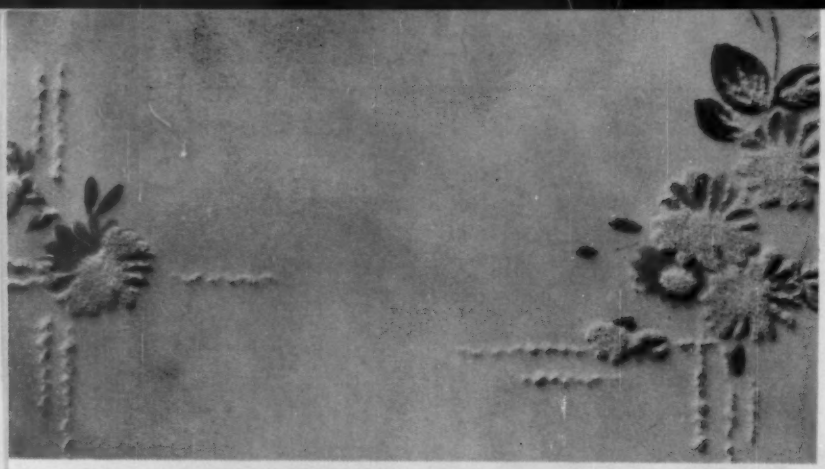
Atomizer-type humidifiers keep the relative humidity at about 87%. Standard temperature is 84° F. Thermostatically controlled fans bring fresh outside air into the mill as needed.



CLOTH is closely inspected on the loom by Weaving Overseer P. L. Epley.



ROOM is cooled by thermostatically controlled fans that bring in fresh air.



TWO COLORS PLUS A FLOCKED PATTERN give a three-dimensional effect to the decoration of a nylon sheer. The job is done in one run with three engraved copper rolls.

RAYON FAILLE has a flocked pattern picked up with a metallic decoration that adds glitter to the over-all effect.

How Velveray Corp. Produces FLOCKED PRINTS

Flocked patterns brightened with two- and three-color fitted prints are being produced at Velveray Corp., Clifton, N. J. Here's how the plant gets—

- **Multicolored effects with good fastness to washing and dry-cleaning**

FLOCK PRINTING combined with color has become an important factor in the fabric-decorating field. Limited only by the imagination of stylists and designers, the process is being applied to an increasing amount of yardage each year.

The Velveray Corp. produces in the neighborhood of 3,500,000 yds. per month of flock fabrics made from cotton, rayon, nylon, and glass. Constructions include sheers, failles, and tricots.

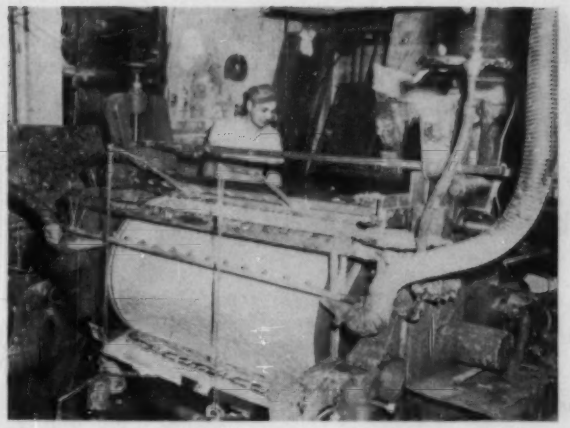
Goods are received at the plant in semifinished condition; that is, they are dyed or bleached, finished, and framed to width. The flocking adhesives and colors that are added are dispersed or dissolved in petroleum solvents, and there are no wet aftertreatments; so there is little or no change in the hand or dimensions of the basic fabric by the flocking process.

How Flock Is Applied

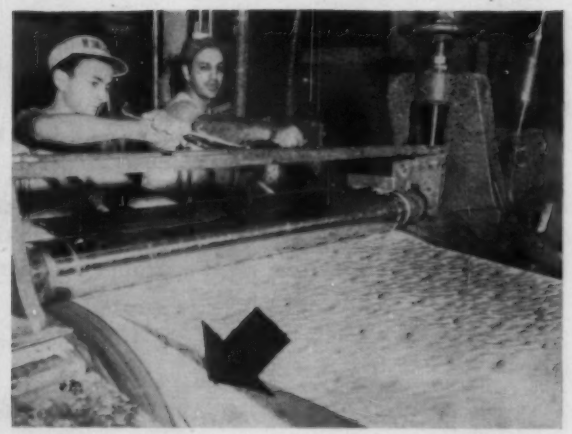
There are two basic methods used to apply flock adhesive in patterns to a fabric: the stencil method and the engraved-roll method. Velveray uses both methods but favors the engraved-roll process for most work. Recent improvements in adhesives and the development of correct engraving procedures have made the conventional copper roll practical for printing on adhesives.

The machines used by Velveray are similar to but simpler than the usual roller-printing machine. There are no color boxes; the flocking adhesive or color is laid on the doctor blade, which feeds the material to the engraving.

Fabric is fed from the back of the machine. The rubber-covered cylinder face is protected from adhesive or color by a layer of kraft paper fed between cylinder and fabric.



ONE COLOR is being printed on this fabric by the top roll, and flock adhesive is being applied by the bottom roll. Colors are fed directly to the doctor blade.



FEEDING COLOR onto the doctor blade, "Sal" Anorelli is watched by Gerard Cerone, printer. At arrow, paper used as a back gray is shown leaving the machine.

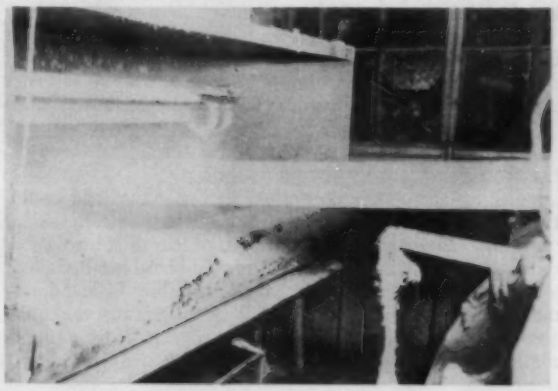
The adhesive may be clear or pigmented and must have certain characteristics to perform properly. Velveray's formulations are restricted but include oxidizing adhesives and the newer polyurethane compounds that require a catalyst to effect a cure. The latter compounds give better washability, and the flocked areas are more flexible.

How Flocking Is Done

As the cloth, printed with the adhesive, leaves the machine, it travels into the flocking chamber, where rayon flock is showered on it from both top and bottom. The fabric is vibrated during its passage of about 10 ft. through the flocking chamber to orient the flock and help produce clean outlines at the edges of the patterns.

The flocked fabric is pulled from the flocking chamber into a festoon dryer, where it hangs in 12-ft. loops on aluminum rods. Temperature in the dryer will vary with the fabric, the adhesive, and the print color used; but it is generally in the neighborhood of 130 to 180° F.

Passage through the dryer takes 3 to 3½ hrs. The dryers are 120 ft. long and are of a capacity to permit a printing production of better than 40 yds. per min.

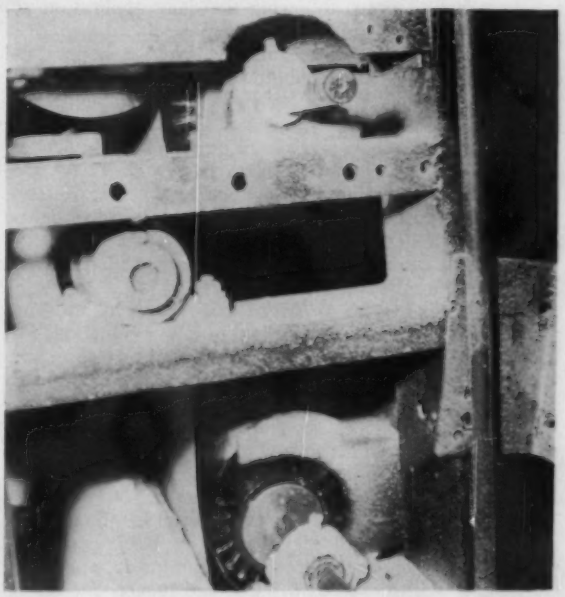


FLOCK APPLICATION starts as close to the printing machine as practical. The fabric is smothered with flock and vibrated during its passage through the 10-ft. unit.

Cleaning Up Is Important

Although the flock is fastened to the fabrics only in the adhesive-printed areas, a certain amount of flock is trapped in the spaces between threads in an open-weave fabric; and on taffetas or failles, there is a certain amount of surface adherence. So when the goods leave the dryer, they pass through a brushing machine. A series of brushes whisks off unwanted flock, which is carried away by vacuum nozzles mounted on each brush.

For the hydrophobic fabrics, brushing is followed by passing the fabric through an enclosure carrying a number of wires charged with very high voltage. Static is dissipated by the high-voltage field generated near the wires, and residual flock can then be removed by vacuum.



BRUSHES work on both sides of the dried fabric to remove excess flock after the drying operation. Unwanted flock that remains is removed by passing the fabric through an electrostatic field.

How Colors Are Applied

Two or three colors are commonly added to flock prints to gain variety and enhance the decorative value.

The colors used at Velveray are generally pigments dispersed in resins or latices that will adhere well to the cloth but present no tacky surface that will hold flock. The colors must also be as crockfast as possible and able to withstand washing at moderate temperatures. Color is

CONTINUED ON PAGE 216

Control HOSIERY LENGTHS With the Cold-Board Method

The cold-board method of controlling full-fashioned hosiery lengths does a good job for little cost. To get the best results—

- **Use a form on a hydraulic cylinder**
- **Test stockings twice weekly**
- **Tie the method in with an uneven-side program**

By J. C. BAUMGARDNER, Lee Hosiery Mill, Inc.

FULL-FASHIONED-hosiery manufacturers who produce only in the gray must maintain a high-quality product because their margin for profit is much narrower than that of the larger manufacturers who have their own dyeing, finishing, and distributing facilities. Gray quality must be rigidly controlled at a minimum cost to be able to sell the product to the larger manufacturers and distributors and meet competition.

Length control, which includes uneven sides, is one of the most important requirements for a quality stocking. If lengths are adequately controlled in the gray, little or no trouble will be experienced with lengths in the finishing operation. There are several methods of length control used today; the one described here is the cold-board method.

Too much adjustment is worse than too little adjustment. The cold-board method is by no means the final answer to this never-ending problem, but it is a good method from the standpoint of cost and control.

Knit Two Test Sets Weekly

Instruct knitters to knit a test set twice weekly. This set must be as dry as possible and must be taken after several sets have been knitted following the daily application of cleaner or oil to the knitting elements.

Preset the test set in the regular manner at a thermostat-controlled wet-bulb and dry-bulb temperature. All knitted blanks must be preset in exactly the same manner, or lengths will be drastically affected.

Hang the sets loosely on racks to prevent wrinkles. After steaming, seam the test set, which is now ready for the length check. The cold-board method of checking is done on a regular finish-boarding form mounted on a hydraulic-fluid-filled cylinder with a pressure gauge attached. Check the gauge for calibration with a 30-lb. weight immediately before checking the test sets.

The boarding form is permanently marked in ½-in. graduations for over-all lengths and in ¼-in. graduations for heel lengths. The form has size pieces for insertion at the toe. Insert the correct-size piece to correspond with the size of the set to be tested, and begin the check.

Pull each stocking on the form by grasping it near the center of the welt with the heel of the hands, and give an even pull until the indicator hand on the gauge is at 30 lbs. Allow the stocking a second or two to settle.

Record the over-all length and the heel length of each stocking on the length-test sheet. Use black pencil to record lengths by the proper section number when the stocking is within standard. Use red pencil for short lengths and blue pencil for long lengths. Group the over-all and heel lengths separately at the bottom of the length-test sheet for a better analysis.

Test Welt Stretch

The next step is the welt stretch. Place each welt on a Du Pont stocking-fabric stretcher, and give the same stretch with the weight provided. The stretch is recorded on the test sheet as a group only. Copy the completed test sheet on a master card. There is one master card for each knitting machine, and it records eight test sets.

Make no over-all adjustment if the majority of sections on a machine are slightly short or long but still within the allowed tolerances until the condition repeats itself. If the condition is repeated, move the stitch regulators one graduation, and check another set immediately.

If any sections are out of standard, adjust them individually. Where many sections are out of standard due to a style change, new verge plates, or other changes, move the regulators to get a better average. Adjust the needle-bar screw only as a last resort when you adjust individual sections.

Check the yarn for correct denier and the threading for the correct tension. Yarn eyelets and tension devices sometimes get unclean or grooved and add tension to cause a short stocking. Try swapping the yarn from a section running a little short with one running a little long. This trick often works because yarn will not pull off all cones or pirns with the same tension.

Keep Sinker Play to 0.002 in.

Check the sinker play between the slur cam and the verge plate at several spots across the width of the section. Keep this play about 0.002 in. Sometimes the verge plate will be found uneven and must be replaced.

If these checks fail, the needle-bar screw may have to be moved as a last resort. Move the screws in at small increments to keep the needle bar close to its original and correct pitch. After adjusting sections out of standard, recheck the stockings on the forms.

Welt stretch can be kept close to perfection by using the correct regulating buttons and by watching the yarn for the correct tension. The after-welt measurement can also be kept right with the correct regulating buttons.

The heel lengths can be kept close to perfection with the proper amount of rocking action in conjunction with the toe measurements. The fabric in the toe and heel should always match.

After over-all adjustment to the regulators or the rockers, check the rocker-cam bits thoroughly to insure that there is no rocking action in the instep of the foot or in the dividing. Make an immediate check after a yarn change or a style change. This cold-board method, used twice weekly, will keep lengths controlled; and it compares favorably with other methods in use today.

LENGTH-TEST REPORT shows up uneven leg and heel lengths. Within-standard lengths are entered in black pencil. Red pencil is used for short lengths, and blue pencil is used for long lengths. Welt stretch is recorded at the right, and the over-all lengths and heel lengths are grouped separately at the bottom for better analysis.

Length - Test Report

Report No. 46 Date 2/6/57 Gray Length 31½ - 32½
Legger No. 7 Style No. L648
Size No. 9½ Gauge 60

Section No.	Length	Heel	Welt Stretch Gray	Inches
1	32	6		
2	32	6¼		
3	32	6¼		
4	31½	6		
5	31½	6		
6	32½	6½		
7	32	6¼		14
8	32	6¼		13¾
9	32½	6½		13½
10	32	6¼	//// ///	13¼
11	32½	6½	//// //// //// ////	13
12	32½	6¼	//	12¾
13	(33)	(6¾)	/	12½
14	32	6¼		12
15	32½	6½		11¾
16	32	6¼		11½
17	32½	6¼		11¼
18	32	6		
19	32½	6½		
20	31½	6		
21	32	6¼		
22	31½	6		
23	32	6¼		
24	31½	6		
25	(31)	(5¾)		
26	32	6		
27	32	6¼		
28	32	6¼		
29	32	6¼		
30	32½	6½		

Gray over-all	28½	29	29½	30	30½	31	31½	32	32½	33	33½	34	34½	35	35½
						①	////	/// ///	/// ///	①					
Gray heel		4½	4¾	5	5¼	5½	5¾	6	6¼	6½	6¾	7			
							①	/// ////	/// ///	///	①				

To control uneven sides, have each knitter knit a test set once each month to be checked on the Premier selvage tester. This set also must be free from oil and cleaner to get an accurate check.

Knitters should remove all sets so that one side of a stocking is not stretched more than the other. A good method is to grab the stocking near the end of the toe and pull it straight away from the knitting section. The set is taken directly from the knitting machine to the selvage tester before steaming, seaming, or inspecting.

In recording the scale readings of both the foot and the leg, all short sides may be recorded with a zero and the long sides recorded in fractions of an inch. The differences in the leg selvages up to, but not including, ⅜ in. are within the allowed tolerance and no adjustment is made. The differences in foot selvages up to, but not including, ¼ in. are within the allowed tolerance and no adjustment is made.

Pick up a second stocking from all heads that are not within the tolerances. Check these stockings again on the selvage tester to make sure that no mistake was made on the original check and that the condition that caused the stocking to be out of tolerance still exists before any adjustment is made.

How To Adjust Machines

Here are some examples of routine in adjusting:

If the leg of a stocking is OK but the foot is ⅜ in. shorter on one side, check the splicing yarn for correct denier and then check the threading of the yarn on both sides of the foot. Sometimes one splicing yarn will be threaded wrong and will add or subtract tension.

Check for cleanliness all parts that both splicing yarns touch. Sometimes a worn carrier tube will be found to be the cause. Swapping the splicing yarns on the section will often even the foot.

Try swapping the tension wires and snappers, and check the tension of the snapper springs. Check the tension rings for wear, and check the needles for alignment. Sometimes a new needle-bar clamp has been put on and has moved the needles back to cause that side to knit shorter.

After each adjustment, another check must be made on the selvage tester. If these adjustments have not corrected the foot, a little tension must be added to the loose side. Have two or three different-weight tension rings for this purpose, because this method is better than threading a single yarn over and under the rods immediately above the yarn. Sometimes the knitter, seeing the yarn on one side of the section threaded differently, assumes it to be a mistake and changes it.

If a stocking is knitting ⅜ in. short on the left in the leg and foot, this section will appear to be knitting uneven as the first part of the welt is being knitted. First, check the needles for alignment; then check the verge plate with the gauges.

CONTINUED ON PAGE 210

Selvage Test

Style: L648 Date: 2/27/1957
Gauge: 60 Mill: Lee Hosiery
Machine No. 7

Sec. No.	First check Foot	First check Leg	Final check Foot	Final check Leg	Sec. No.	First check Foot	First check Leg	Final check Foot	Final check Leg
1	0-⅛	0-0			16	0-0	0-0		
2	⅛-0	0-⅛			17	⅛-0	⅛-0		
3	(¼)-0	(⅛)-0	0-0	0-0	18	0-0	0-(⅜)	0-⅛	0-0
4	0-0	0-⅛			19	0-0	0-0		
5	0-0	0-0			20	0-0	0-0		
6	0-⅛	⅛-0			21	0-0	0-0		
7	0-0	0-⅛			22	0-⅛	0-0		
8	0-(⅜)	0-0	0-⅛	0-0	23	0-(⅜)	0-(½)	0-0	0-0
9	0-0	0-0			24	0-⅛	0-0		
10	0-0	0-0			25	0-⅛	⅛-0		
11	(½)-0	0-0	0-0	0-0	26	0-⅛	0-⅛		
12	⅛-0	0-0			27	⅛-0	0-0		
13	⅛-0	0-0			28	0-0	0-0		
14	0-⅛	0-0			29	0-0	0-0		
15	0-0	0-0			30	⅛-0	0-⅛		

SELVAGE-TEST REPORT helps to keep uneven sides to a minimum. Short sides are recorded with a zero, and long sides are recorded in fractions of an inch. The differences in the selvages, ⅜ in. and above for the leg and ¼ in. and above for the foot, are adjusted and checked a second time.

USE PACKAGING TO CUT MARKDOWNS DUE TO SOILAGE

Because shoppers destroyed the transparent wrap when they examined this company's brassieres, soilage and markdowns used to be high. Now packed in windowed folding cartons, brassieres can be removed by customers for examination and easily replaced. The merchandise stays fresh and salable—reducing virtually all markdowns and returns due to soilage.

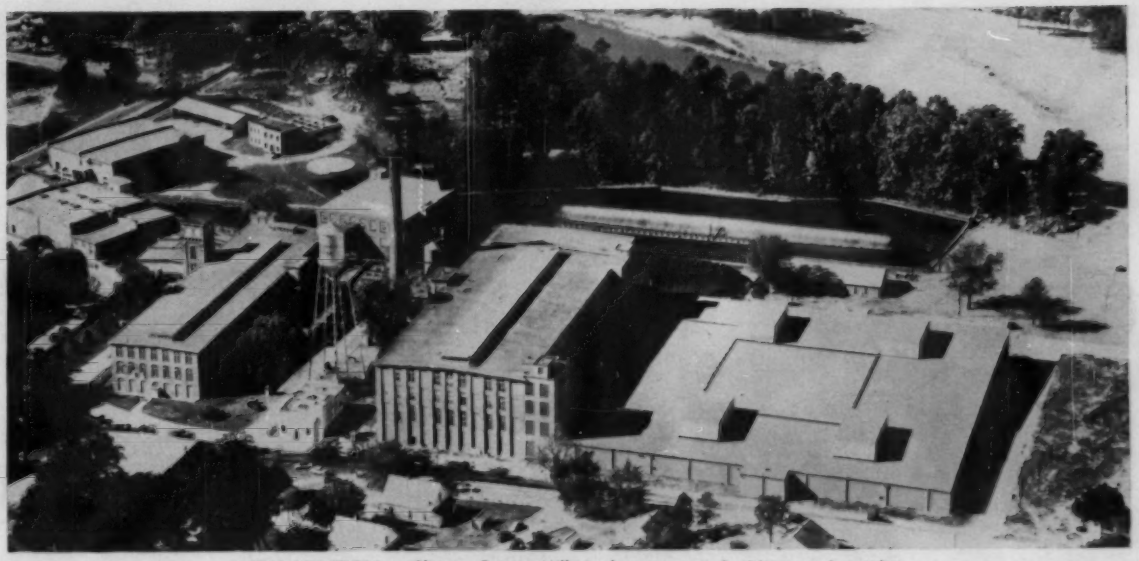
More profits through progress in packaging

CONTAINER CORPORATION OF AMERICA

38 South Dearborn Street, Chicago 3, Illinois, and 42 other cities

Corrugated and solid fibre shipping containers, folding cartons, flexible packaging, fibre cans

← For more data, write this page number on Reader-Service card.



NEW ADDITION to Clinton Cotton Mills is the one-story building at the right.

Clinton's New WEAVE ROOM

A new one-floor weave room at Clinton Cotton Mills, Clinton, S. C., has—

- **Tile walls**
- **Full insulation**
- **Modern machinery**

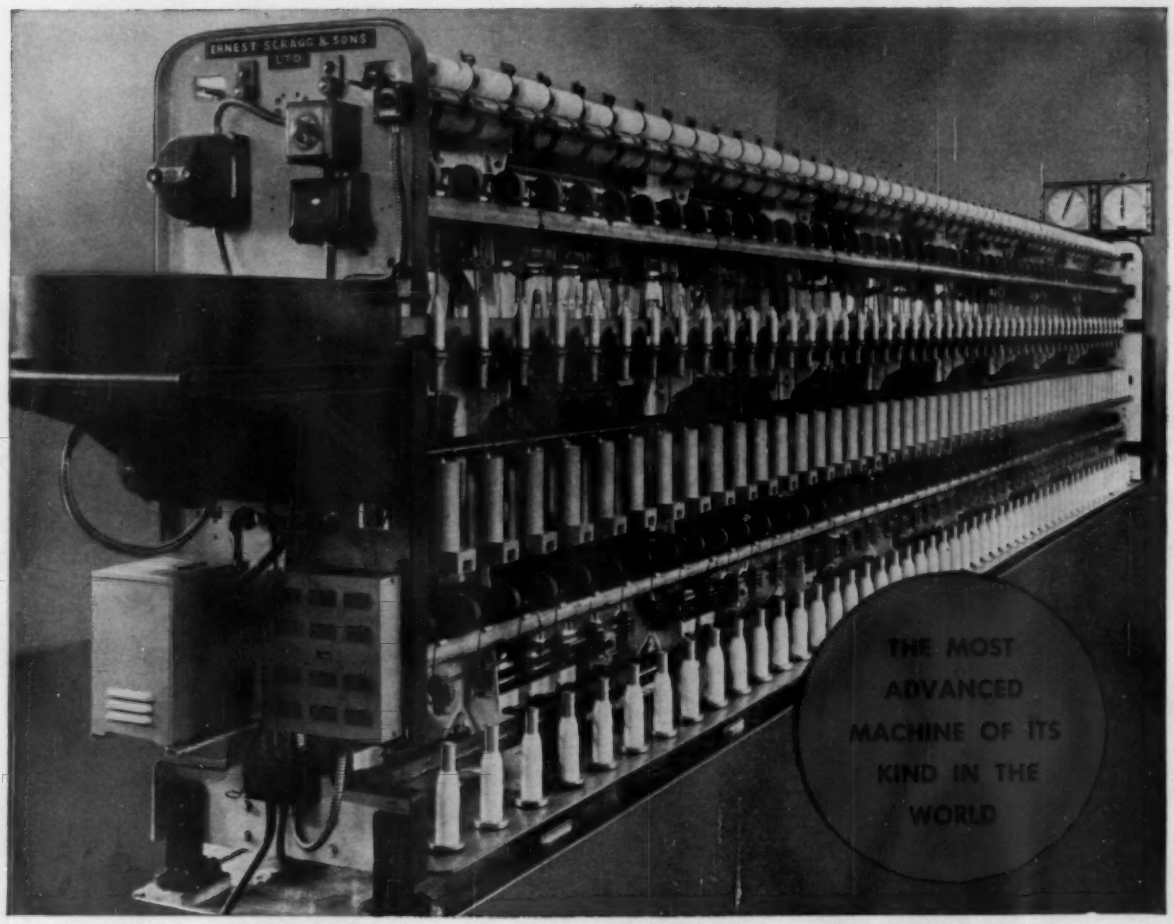
By WILMER C. WESTBROOK, Assistant Editor, TEXTILE WORLD

ALL TOO OFTEN a cotton mill will just grow; and machinery will be fitted, hit or miss, into existing buildings. Many times it's impossible to fully utilize floor space, or else the machines are too crowded for efficient operation. Then, too, there is sometimes the problem of adequate light and ventilation or other obstacles to quality and quantity production.

When a new weave room was planned at Clinton Cotton Mills, Clinton, S. C., the many factors of weaving were considered. The weave room has been in operation two years, and the advantages to be gained by a well-planned room can easily be seen.

When the new annex, known as No. 2 weave room, was built at Clinton, some new X-2 model looms were bought. A number of E model looms were also installed in the new room. The X-2 looms are 44 ins. and 46 ins. wide.

WEAVE ROOM contains 1,296 E- and X-2-model Draper looms. Note the tile walls.



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C.S.1. CRIMP TWISTING MACHINE

Designed and manufactured throughout by ERNEST SCRAGG & SONS LTD., this remarkable machine produces finished crimp yarn in Nylon, Terylene, etc., in a single high-speed operation. Bristling with exclusive features, this new ERNEST SCRAGG triumph demands your closest attention.

- TREMENDOUS INCREASE IN PRODUCTION, WITH LOWEST COSTS
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- ELECTRONICALLY CONTROLLED THROUGHOUT
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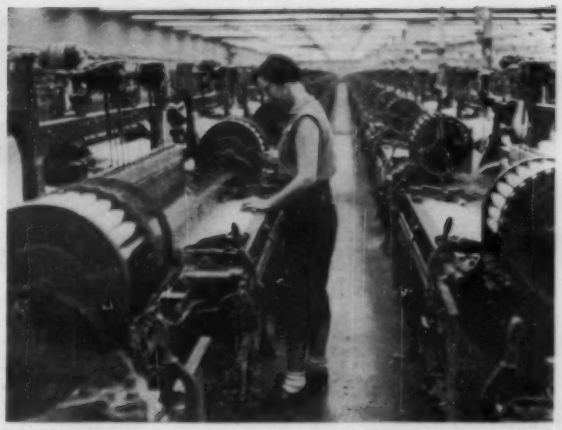
LOOMS operate at 165 and 183 ppm. Loomfixer R. C. Cannon has 100 looms on his section.



PLAIN FABRICS are woven in the new room. Weaver Mildred Kinnard tends 100 looms.

CLOTH is inspected regularly on the looms. Shown here is Weaver Nellie Osborne.

BATTERY-FILLER TRUCK is shown in use by Batteryhand Nell Canfield.

Looms Weave Plain Fabrics

The looms have Draper-Diehl drives and operate at 183 ppm. They have single side filling forks and sliding feeler bar four-bank warp stop motions. The take-up is high-roll, worm-driven; and the Roper let-off motion is used. The filling-changing mechanism includes midget feelers and Stafford thread cutters.

The cam-actuated harnesses are lifted by sheave and roll top motions. Some of the plain weaves are spread on four harnesses to reduce the crowding and chafing of the warp ends. Many features of the E-model looms are similar to those of the X-2 models except these looms have disk friction drives and electric warp stop motions.

The 22-in. warp-yarn beams of the E-model looms and the 26-in. beams of the X-2 looms will run from two to three weeks, three shifts per day, six days per week. New warps are tied at the looms with a Barber-Colman 56-in. portable tying-in machine.

Jobs Will Vary

The warp-tying routine is for the lease-out man to cut out the exhausted warp and clean and lubricate the loom. The warp man disposes of the empty yarn beam and places a full beam in the loom. The yarn of the pattern and that of the new warp are combed out and leased on the rack by the lease-out man.

When the knotter completes tying the warp, the operator carries it to the next loom; and the lease-out man gets the rack to repeat the cycle. The newly tied warp is straightened out, and the loom is started by a pull-over man.

The jobloads in the new weave room at Clinton have been laid out as a result of job-measurement checks. The jobs vary according to type of fabrics being woven and other variables. Weavers have 80 to 100 looms per job.

Labor Turnover Is Low

The batteryhand jobs are being constantly revised to compensate for changes in the running time of individual quills of filling. Paddock-type battery-filler trucks are used. The truck hoppers are replenished from boxes placed at central locations about the weave room. The boxes of filling are transported by filling men using battery-powered electric trucks.

Labor turnover is low at Clinton. When a replacement is needed, local people are given preference. Also, employees are upgraded in the mill whenever possible, apprentice weavers and loomfixers being placed with experienced employees to learn the jobs.

Quality is closely controlled by inspection of the cloth on the looms as it is being woven. When weaving

CONTINUED ON PAGE 214

SEND FOR THESE 5 MANUALS ON MACHINE MODERNIZATION

Written for TOP MANAGEMENT to use — by SACO-LOWELL — *to help you increase your profits.*

Manuals No. 1 and 2 outline new assemblies which will modernize your cards and bring them up to current standards for quality, cost-reducing production, and resultant higher profit. The other manuals for top management's information and operational level use offer concrete suggestions for proper card maintenance.

This booklet outlines procedures vitally necessary to every mill desiring exact and economical control of its spare parts inventory, plus a helpful guide to the installation or revision of an inventory control system.

Plus

SACO-LOWELL Repair Sales New — published regularly in the interest of better textile machinery maintenance. Keeps you abreast of the latest developments in maintaining and modernizing your equipment — information so necessary in this day of rapid technological changes in a highly competitive market.

Send for these manuals and ask to have your name placed on the mailing list for Repair Sales News. Write to Repair Sales Division, Dept. 231.

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Training Is More Than Common Sense

• The idea that training is merely the application of common sense to the problem of developing job skills in an employee probably arises from the fact that learning is hard to prevent. But increasing knowledge about industrial training is turning up some surprises about the effectiveness of the common-sense approach.

By J. E. GARDNER, Assistant Director of Personnel Research, Fieldcrest Mills, Inc.

The fact that employees do learn some job skills leads us to ascribe some special virtue to our training methods, however inadequate. Where the methods are simply a matter of common sense and learning does occur, we are likely to assume that common sense is the answer to our training problems. This assumption is very comforting, because then we needn't bother a great deal with the training of instructors. If training is common sense, then anyone with common sense can train our operators. He doesn't need to be taught how to train; he already knows.

Some learning will occur under the worst of circumstances. The employee may not quite learn exactly what he is supposed to learn, and he may learn even that inefficiently. But given the required aptitude and a minimum of interest, he will acquire skill in something resembling the job method and eventually will run the job in some manner.

He is very likely to do so even if the foreman ignored him completely and left him to his own devices.

What Training Methods Are Best?

No supervisor, however, would leave a new employee completely on his own. There is, at the least, an effort to use in some part the techniques or steps of explanation, demonstration, practice, testing, and correction. These traditional techniques, whether informally used or made into a formalized program, basically represent a common-sense approach to training.

It is highly doubtful that common-sense training does much more than to help us avoid excessive interference with the learning process. Common-sense training, at its best, permits learning to occur. At its worst, it is a handicap to the learner. However, it is usually clearly superior to trial-and-error learning.

But learning can be stimulated and speeded—beyond being merely permitted—through the use of training principles and techniques that go beyond (and often counter to) common sense. There is potentially great gain in the difference between permitting and fostering learning.

To realize such a gain it may be necessary first to recognize and then to act upon the fact that there is a developing body of information about industrial training. These data deal with principles of learning techniques of teaching, research findings, recorded observations, etc., which can contribute to the success of our own training and which no amount of common sense, in itself, can match as valid bases for training programs.

How Common Sense Can Go Wrong

To cite some examples:

1. Common sense may tell us that we should break a task into its parts and teach the parts separately. There is evidence indicating the superiority of teaching the whole task from the start rather than teaching the separate parts and combining them later.

2. Common sense may tell us we don't learn anything "just resting." But the use of rest periods or other methods of spacing our practice appear to facilitate learning.

3. Common sense may tell us that tasks on a particular job that are similar should be grouped together and scheduled in adjoining training periods. However, there is evidence from studies of both learning and efficiency that the best arrangement is to shift the trainee between dissimilar tasks. With such a shift there is a minimum of interference with retention of the first task and a minimum carry-over of loss in efficiency.

Common sense appears to presume too much upon transfer of training. An employee is often expected to adapt to changes in machinery and to carry his skill into a changed task. Actually, transfer of training is difficult. The elements common to both tasks will carry over, but not necessarily on their own; the parts of his old skill applying to the new assignment should be pointed out to the employee.

CONTINUED ON PAGE 224

SOLVAY CHEMICALS FOR WOOL PROCESSING

SODA ASH

SCOURING—Removing grease, oil and dirt from raw wool.

WASHING—Removing spinning and weaving oils and dirt from yarn and cloth.

FULLING—Building soap for lubrication of fibers to promote shrinkage.

SODIUM BICARBONATE

REDUCING pH—Reducing pH of solutions of soda ash and alkalies during scouring and washing.

CAUSTIC SODA

CONVERTING—Converting excess sodium bicarbonate (formed by carbon dioxide absorption during scouring) to sodium carbonate.

SOAPING—Preparing soap for scouring and fulling.

SHRINKPROOFING—Preparing sodium hypochlorite for shrinkproofing.

SNOWFLAKE® CRYSTALS
(SESQUICARBONATE OF SODA)

SCOURING—Washing of yarn and cloth; building of soap for fulling.

CHLORINE

SHRINKPROOFING—Preparing sodium hypochlorite for shrinkproofing.

HYDROGEN PEROXIDE

BLEACHING—Reducing colored impurities to colorless forms by white scouring following alkali-soap scouring.

FULLING—Assisting alkali-soap lubricant.

SHRINKPROOFING—Dissolving epithelial cell hooks on wool fibers to allow slippage and minimize shrinkage.

ORTHODICHLOROBENZENE

DE-PAINTING—Removing paint and tar from raw wool.

ODOR CONTROL—Minimizing objectionable odors of wool scouring waste.

METHYLENE CHLORIDE

DE-PAINTING—Removing paint and tar from raw wool.

CALCIUM CHLORIDE

WASTE TREATMENT—Causing separation of wool grease and dirt from waste scouring liquor.

SHRINKPROOFING—Reducing rate of oxidization of wool, and buffering pH in Stevenson & Wolsey (S-W) Process to minimize degradation of the wool.

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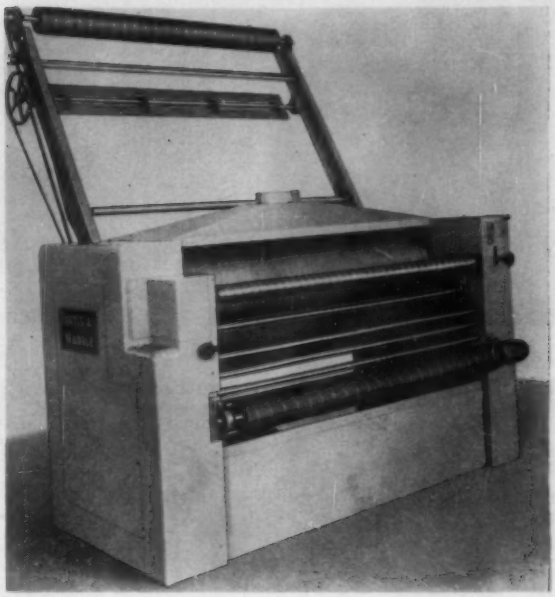
High-Pile Napper



A napping machine especially designed to produce an even pile on simulated-fur fabrics has been announced by Curtis & Marble Machine Co., 72 Cambridge St., Worcester 3, Mass.

The machine works well on looped knitted fabrics made of synthetic fibers or blends of synthetic fibers with cotton or wool.

Settings for the napping process can be duplicated from run to run by reference to a numbered dial attached to the depth-regulating mechanism.

The cylinder speed of the napper is 300 to 375 rpm., and cloth speed is 1¼ to 7½ yds. per min. The napper requires a total of 6 hp. for operation. Standard width is 72 ins.; and the machine requires a space 8 ft. 4 ins. wide and 6 ft. 8 ins. deep, with 9-ft. head room. Other sizes can be built to the customer's order.

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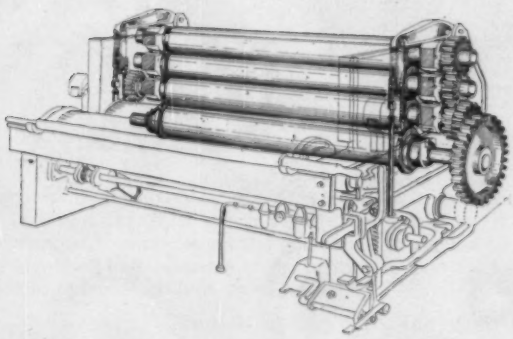

High-Compression Calender Rolls

Laps weighing 85 lbs. can be made on Saco-Lowell pickers equipped with high-compression calender rolls recently introduced by Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass. The change-over produces heavier and firmer picker laps for increased creeling intervals and decreased reworkable waste at the cards.

As much as 60% more yardage can be wound in the over-all diameter of conventional picker laps. The laps run longer on the card, show an immediate reduction in creelings and front waste, and are less likely to be damaged during handling.

The assembly, which can be applied to all Saco-Lowell pickers equipped with a Model 5 calender section, includes:

Four high-tensile-strength steel calender rolls mounted in antifriction bearings

Hardened cut-steel gears of special tooth design for maximum strength and steady drive

A leverage pressure system that almost doubles conventional pressures

Knock-off-motion gears that compensate for the increased lap yardage.

Circle T-2 on Reader-Service Card

Improved Dobby Loop

A dobby loop, or jack eye, with four improvements is being produced and sold by Louis P. Batson Co., P.O. Box 772, Greenville, S. C.

The improvements are: (1) the loop is constructed in one piece to prevent separation and breakage; (2) the heavy extra-thick three-lug cleat eliminates wear and bouncing out of the notches of the dobby jack on heavy weaves when double pull-down springs are used; (3) a large ⅛-in. pin supports the cleat and joins the loop flush with the sides of the loop to eliminate wear, failure, and wear to adjoining loops; and (4) the loop is casehardened after it is manufactured to insure long life and trouble-free service.

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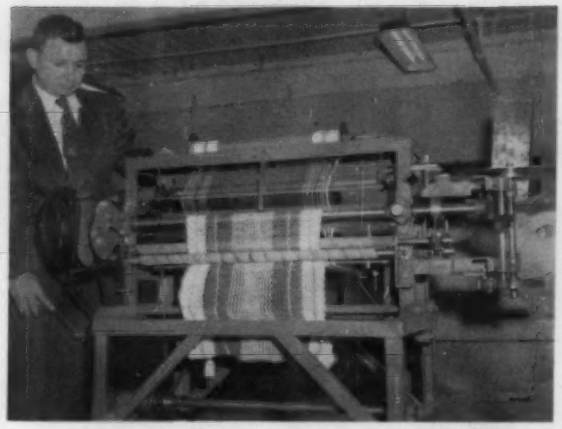


Knitting Machine Without Needles

A knitting machine that uses no needles has been developed at Clemson College, Clemson, S. C., by Dean Hugh M. Brown and Prof. T. D. Efland. Instead of needles, the machine has tubes or hollow guides that are threaded with yarn.

The guides are mounted in two bars, which have forward swinging motions. The guides have flattened tips, which are pushed between the guides and the yarn.

The bottom guides push their threads between the top guides and their threads and move sidewise. The top guides pull back, and the stitches drop off. The top guides then move down, push their yarns between the bottom guides and their yarn, move sidewise, and push the yarn through. The bottom guides go back, and their stitches are cast off.

A horizontal pattern wheel moves the top guides to the left or the right, and the bottom guides are stationary. The guides swing through independently from a camshaft on the left side of the machine.

Yarns are fed from two warps, and heavy yarns are used. A spring-tensioned take-up draws the fabric away from the tubes.

The knitting elements can be moved over more than one space. Fabrics that cannot be made on conventional knitting machines can be produced for such articles as stoles, bedspreads, pram covers, and sweaters.

One warp bar can be shifted when its yarn guides are withdrawn from the loops, and it can be shifted when the tips of the yarn guides have engaged the opposite set of yarns. A large variety of fabrics, ranging from heavy, dense fabrics to open fabrics with great elasticity in both directions, can be made.

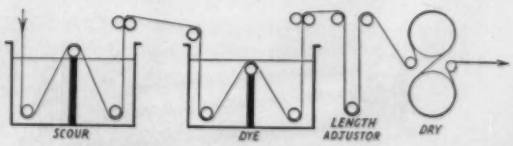
Circle T-4 on Reader-Service Card

Electrical Dyeing Machine

Local boiling induced by electrical currents that pass through the fabric being scoured or dyed is employed to get results in a dyeing machine announced by Bates Textile Machine Co., 5 Lower Church Gate, Leicester, England.

Although water is the medium in which the processing is done, the surfaces through which current flows and over which the fabric passes produce a superheated effect sufficient to singe woolen goods submerged in a salt solution.

The tanks are made of nonconducting material, and electrical energy is supplied to the center support shown in the cut. A 40-in. machine requires 33 kws. of energy per hour for scouring and 20 kws. per hour for dyeing. Processing speeds will vary with the material: viscose averages 60 ft. per min., and nylon averages 30 ft. per min.



Advantages of the dyeing system are claimed to include: rapid wetting out, thorough penetration and levelness of dyeings, 100% dye exhaustion, and easily duplicatable dyeings.

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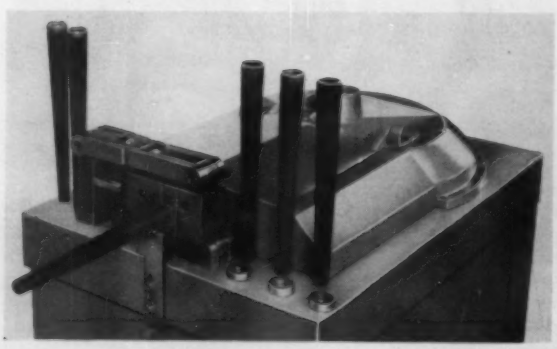


Ring-Pulling Machine

A machine that pulls off old reinforcing rings from the bottom of spinning bobbins and presses on new rings has been introduced in the United States by Stellite American Corp., 60 E. 42nd St., New York 17, N. Y.

The machine, manufactured by M. Brouwerd Co., Holland, has a production capacity of 28 bobbins per minute and is powered by a ½-hp. motor. Matrices are available to fit any bobbin, and one comes with the machine. Rings are supplied by the manufacturer.

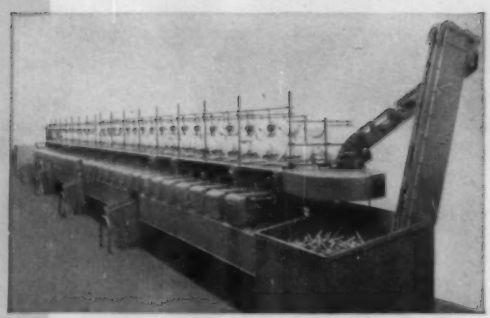
Circle T-6 on Reader-Service Card

High, Low, Jack and Game!

FOSTER-MUSCHAMP MODEL 66

*Automatic Filling Winder**

*Manufactured in U. S. A.



Typical installation showing centralized hopper for automatic bobbin replenishment and automatic pinboarding.

▸ **HIGH** because it achieves a new high in winding quality — uniformly perfect bobbins.

▸ **LOW** because it achieves a new low in winding cost — as low as ¼¢ per lb. of yarn quilled in many cases.

▸ **JACK & GAME** because the quality and economy of Model 66's performance "hits the jackpot" and has not been beaten.

Learn *how* the Foster-Muschamp Model 66 "wins the game" with a spindle speed of 15,000 r.p.m. — the highest yet achieved. Send for Bulletin M-4A.

FOSTER MACHINE COMPANY

Westfield, Massachusetts, U. S. A.

Southern Office — Johnston Bldg., Charlotte, N. C. Canadian Representative — Ross Whitehead and Company Limited, 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario.

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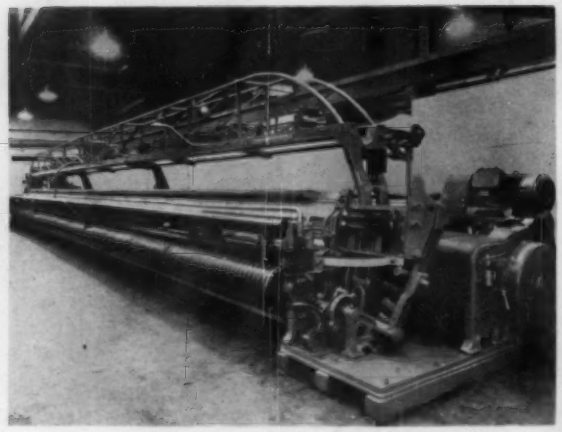


Wide Loom

A loom for weaving papermaker's felt and other high-density fabrics is announced by De Laval Separator Co., Poughkeepsie, N. Y. Designed by Bergedorfer Eisenwerk A-G, Germany, the loom has an over-all length of 70 ft. and a reed space of 60 ft.

Some mechanical features of the loom are variable-speed drive, 17-harness-capacity dobby, positive warp let-off, and the latest electrical devices for protection of the shuttle box and picking mechanism.

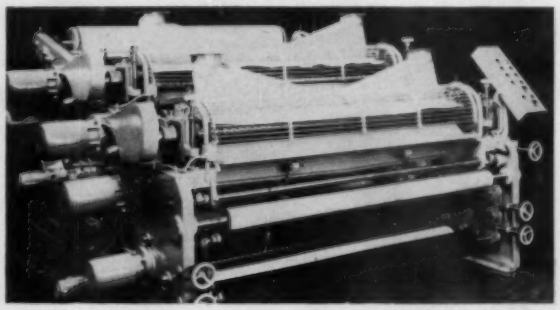
Circle T-7 on Reader-Service Card

Pile-Fabric Shear

A double-cutter automatic plush and velvet shear has been developed by Leo Sistig Maschinenfabrik, Krefeld, Germany.

The machine has automatic seam protection and individually driven cutting blades, which can be reversed for lapping.

The shear is available in 40- and 80-in. widths and produces 4 to 16 yds. per min. through a variable-speed drive. Krehbiel Corp., Box 612, Hillside, N. J., is the U.S. representative.



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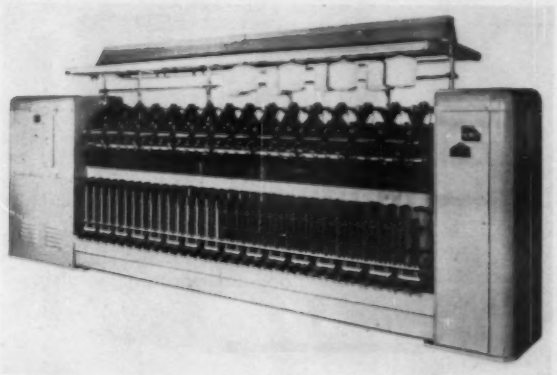


Ring Spinning Frame

The Magnaspin ring spinning frame, built by Fairbairn Lawson Combe Barbour Ltd., Wellington St., Leeds 1, England, is designed for spinning worsted yarn from roving prepared on the Bradford, French, or American systems. The frame will also spin long-staple synthetic fibers from roving prepared on any system.

The frame is of unit construction. Each double-sided section has 32 spindles of 4-in. pitch. The ring diameter is 3 ins., and the lift is 12 ins. The bobbin capacity is 12 to 17 oz. The apron drafting unit has one positively driven reinforced rubber apron per spindle. Apron replacement is made without disturbing the apron driving roller. The self-weighted control rollers may be fitted in a number of alternative positions.

Either S or Z twist is available without changing the spindle drive. The twist is changed by reversing the motor, moving the twist change wheel from one stud to another, and reversing the balloon-control rings.

There are interchangeable draft, twist, and heart change wheels. All change wheels are on fixed centers.

Back and front pressing rolls are loaded by low-rate springs that are individually adjustable. The rollers are carried on a pressure arm, which is held in position at the front by a toggle mechanism. The pressing-roll shells, which are removable from their roller-bearing arbors for regrinding, are synthetic-rubber covered.

Two reversible balloon control rings are provided, and separators prevent flyover. Roller-bearing spindles are fitted with knee brakes, and all bearings are frictionless or oil-impregnated sintered bronze with reservoirs.

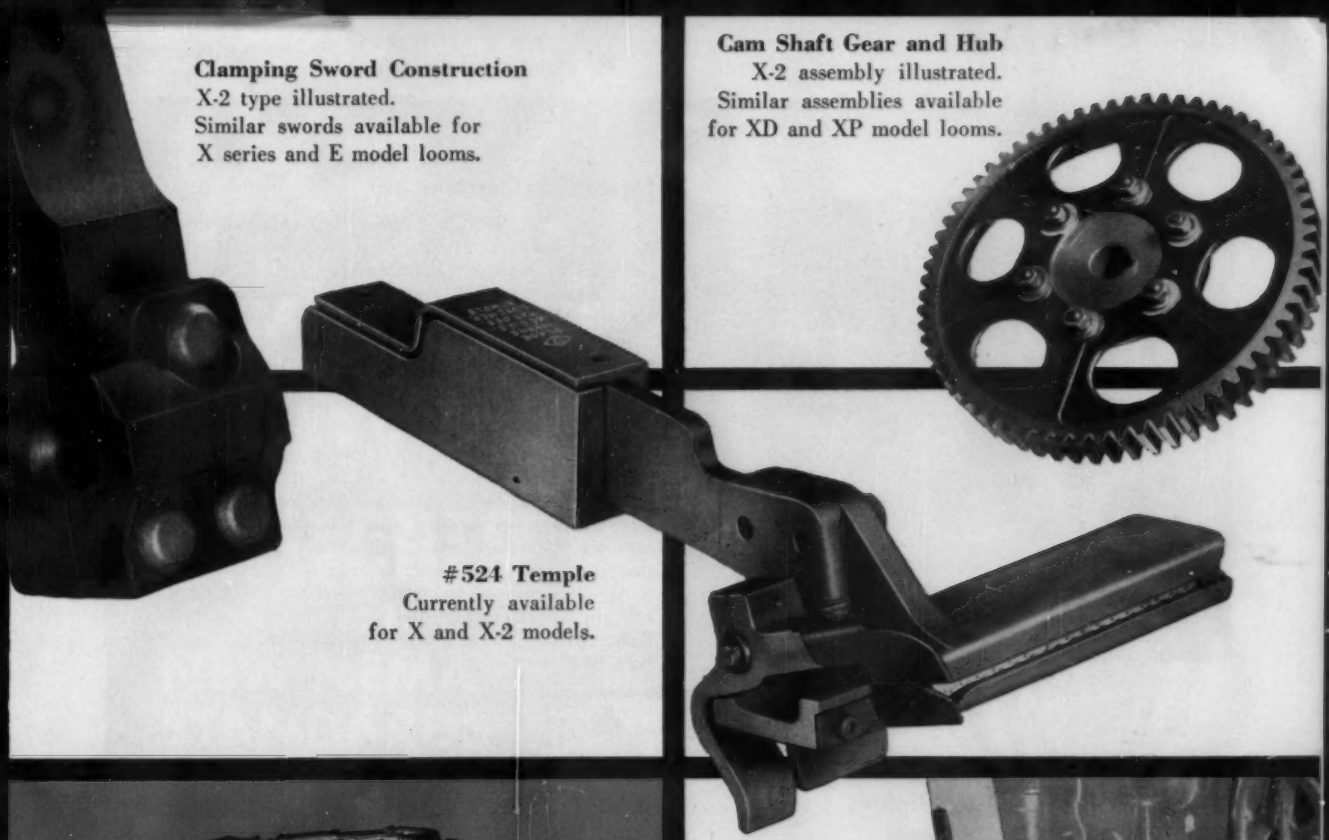
The frame has built-in Pneumafil equipment. The collector-box exhaust provides additional cooling for the frame driving motors.

An umbrella creel is fitted with ball-bearing bobbin holders. A limit switch stops the machine when bobbins are full. The main drive incorporates a solenoid brake and a centrifugal clutch for slow, smooth starts.

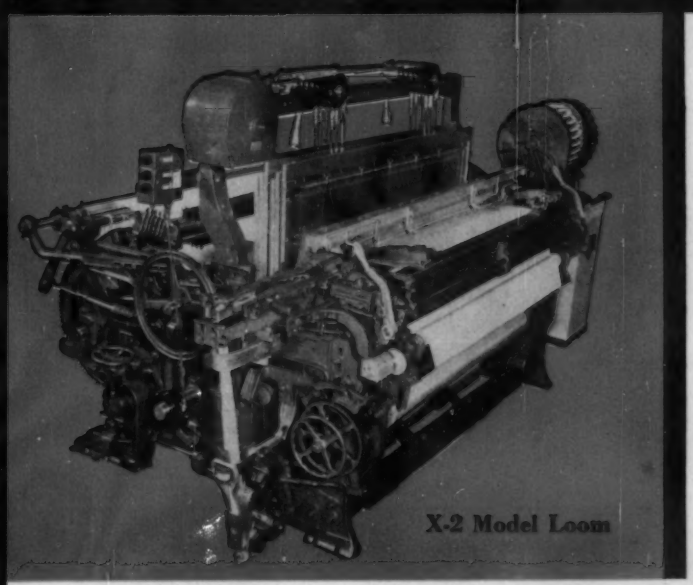
Circle T-9 on Reader-Service Card

Clamping Sword Construction
X-2 type illustrated.
Similar swords available for
X series and E model looms.

Cam Shaft Gear and Hub
X-2 assembly illustrated.
Similar assemblies available
for XD and XP model looms.



#524 Temple
Currently available
for X and X-2 models.



X-2 Model Loom

Linkage Parallel
Available for X-2 model.

Next to new looms . . .

Looms equipped with the latest mechanisms and improved repair parts, *designed and built by the original manufacturer,* will meet today's rugged performance requirements.

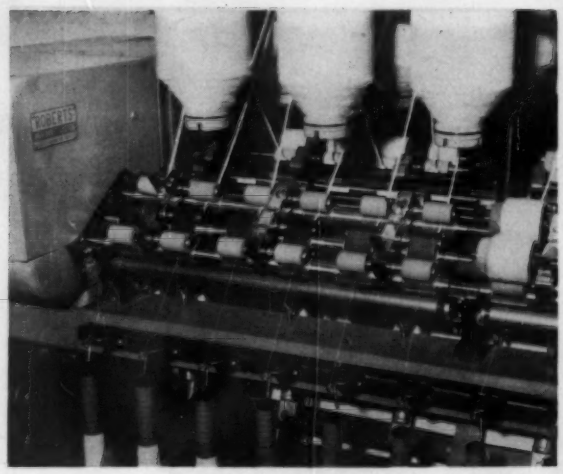
Draper improved repair parts and mechanisms — some of which are illustrated above — are designed to increase loom production, efficiency, and flexibility.

Lower maintenance costs and ease of application are additional benefits derived from the use of Draper repair parts and mechanisms.

Equipped with Draper improved repair parts and assemblies, your existing looms will be second only to *new Draper looms.*

DRAPER CORPORATION

Hopedale, Mass. *Atlanta, Ga.* *Greensboro, N. C.* *Spartanburg, S. C.*



Top-Roll Suspension

A top-roll suspension system that uses double-row ball bearings in front, middle, and back lines has been announced by Roberts Co., Sanford, N. C.

Adaptable to several other drafting systems as well as Roberts, the top-roll suspension has the following features:

Cots are buffed on standard equipment without attachments. Cots revolve together, which makes lap removal simpler; and full length revolving clearers are used. Front and back rolls are interchangeable so that sequence buffing is possible.

Cots have a ½-in.-hole diameter.

The two-piece Labryinth seal is protected from lint entrance and roll-picker damage. Double-row bearing raceways are ground directly into ½-in.-dia. shafts, and bearings are grease-packed. Conventional dead weighting or new spring weighting can be used.

An alternative arrangement employs a ball-bearing top roll and special suspension on the front line only, with Roberts cap bars and solid top rolls on the middle and back lines.

Circle T-10 on Reader-Service Card

Simplified Photoelectric Stapler

A simplified version of the Shirley photoelectric stapler has been announced by Shirley Developments Ltd. Didsbury, Manchester, England.

The instrument measures the modal, or most frequent length of the fibers in the fringe, in the same way as a hand stapler does by eye. The modal length is easily converted to effective length for machinery settings or to staple length for judging fiber quality.

By measuring the amount of light reflected from the fringe along its length, the instrument gives the result as the distance between the two most clearly defined edges. The results are in close agreement with the U.S. Dept. of Agriculture official staples for American growths imported into the United Kingdom; and a conversion factor may be applied to the results of other growths, such as long-staple Egyptian types of cotton.

Circle T-11 on Reader-Service Card

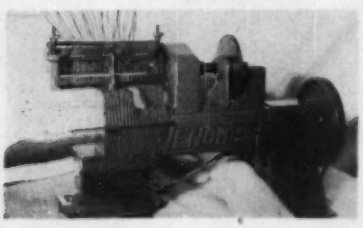
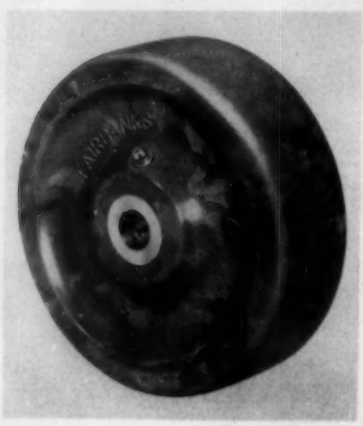


Table-Model Tufting Machine

A 30-needle table-model tufting machine is being manufactured by David Almond Ltd. and sold by White, Child & Beney Ltd., Broadway Court, Westminster, London S.W. 1, England.

The machine has a special take-up device to enable parallel rows of tufts to be produced. A creel is also furnished with the machine.

Circle T-12 on Reader-Service Card



Plastic Industrial Wheels

A nylon-reinforced all-plastic industrial wheel has been announced by The Fairbanks Co., 393 Lafayette St., New York 3, N. Y. The wheels have large-diameter tight thread guards to keep out waste lint and thread.

High impact strength and abrasion resistance help retain the smooth tread and concentricity in service. The smooth wheel surface protects floors against marking. The wheels are not affected by oils and greases and have high resistance to most chemicals, including acids, alkalis, and solvents. They are also sparkproof. Regular sizes are 3 through 12 ins. Alloy-steel roller bearings can be lubricated with pressure.

Circle T-13 on Reader-Service Card

FIRST with a COMPLETE LINE OF SAFETY SWITCHES to meet the NEW NEMA STANDARDS

• The table below shows Square D switches meeting new industry specifications. Notice how they clarify conflicting features which existed under old designations. Notice, too, that they establish a new, heavy-duty industrial switch, Type HD.

One important thing which remains unchanged is the **DESIGN LEADERSHIP** which has made **SQUARE D SAFETY SWITCHES** industry's overwhelming **FIRST** choice for more than fifty years. Compare them, feature for feature. They cost no more, why settle for less?

TYPE HD

TYPE ND

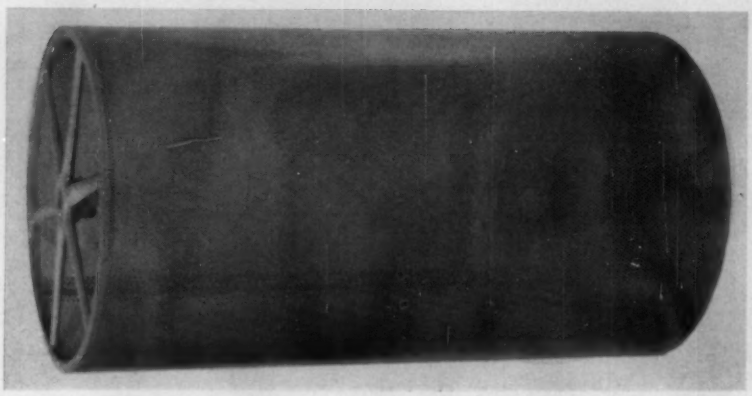
TYPE LD

DESCRIPTION	HEAVY DUTY New	NORMAL DUTY formerly Types H, S, or A	LIGHT DUTY formerly Types D or G
Rating-Ampere Voltage	30—600 250 or 600V AC, DC	30—1200 250 or 600V AC, DC	30—200 250V AC
Enclosure	NEMA 12 • Industrial Use (Gasketed) NEMA 4 & 5 • Water-tight & Dust-tight NEMA 7 • Explosion-resisting Class I—Group D NEMA 9 • Explosion-resisting	NEMA 1 • General Purpose NEMA 3R • Raintight	NEMA 1 • General Purpose NEMA 3R • Raintight
Horsepower Rating	NEC Fuse Ratings Dual-Element Fuse Ratings	NEC Fuse Rating Dual-Element Fuse Ratings	NEC Fuse Rating
Operating Mechanism	Quick-Make, Quick-Break Independent of Handle	Quick-Make, Quick-Break Independent of Handle	Positive Make, Positive Break Spring Assisted
Cover	Interlocked & Padlock Attachment	Interlocked & Padlock Attachment	Padlock Attachment
Plating—Current Parts	Extra-Heavy Silver	Silver	
Endurance	Maximum Endurance Far Exceeds UL Standards	Exceeds UL Standards	Meets UL Standards

NOW...EC&M PRODUCTS ARE A PART OF THE SQUARE D LINE!

SQUARE D COMPANY

For more data, write this page number on Reader-Service card. →



Baked-On-Finish Screens

A baked-enamel finish for textile-machinery screens has been announced by Jenkins Metal Shops, Inc., Gastonia, N. C. The finish eliminates the possibility of rust or ordinary paint getting into the stock.

Screens of heavy-gauge perforated metal with the baked-on finish are available for pickers, condensers, waste machines, filters, and all other machines requiring screens. The finish has been tested and approved for cotton and other fibers.

Circle T-14 on Reader-Service Card

Electric Truck for Yarn

An electrically powered truck to haul bobbins of filling yarn in boxes or pinboards has been developed by Lewis-Shepard Products, Inc., Watertown, Mass. The trucks are built to travel in narrow weave-room aisles, and each truck is said to service 100 looms weaving multicolored cloth and 150 looms on one-color cloth.

The truck is powered by a battery, and controls for operating it are in separate handles at each end so that it will run in two directions. The truck will turn in its own radius.

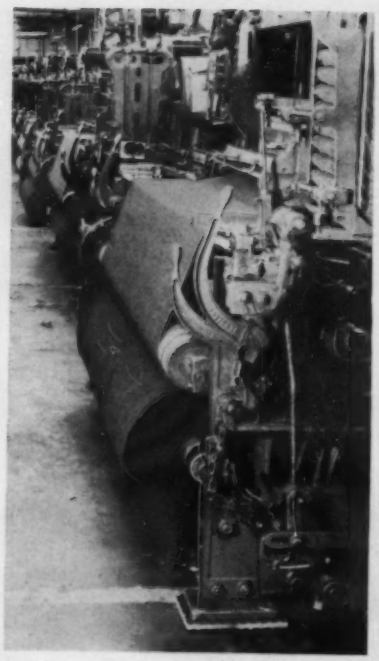
Circle T-15 on Reader-Service Card

Hosiery Machine

Model-ETR hosiery machine, built by Scott & Williams, Inc., Laconia, N. H., is now made to knit genuine 2x2-rib crew, triple-roll, or athletic socks without a fabric take-up or draw thread.

The 2x2-rib ETR machine is designed to drop each stocking off the needles at the end of the knitting cycle and automatically start knitting the next stocking. The result is ribbed fabric with maximum elasticity and a clean, even transfer with a short welt.

Circle T-16 on Reader-Service Card

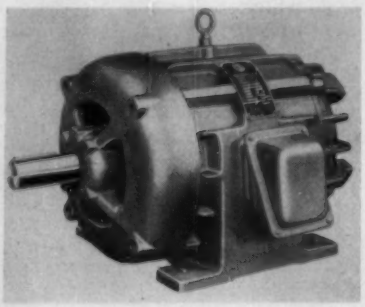


Mounting Pads for Machines

Mounting pads for looms and knitting machines that require no bolting or cementing are announced by Clark, Cutler, McDermott Co., Franklin, Mass.

Tests of the pads in a weave room with looms weaving woolen fabrics showed that vibration was reduced without danger of looms shifting. The pad is constructed of vinyl, sisal, and cork.

Circle T-17 on Reader-Service Card

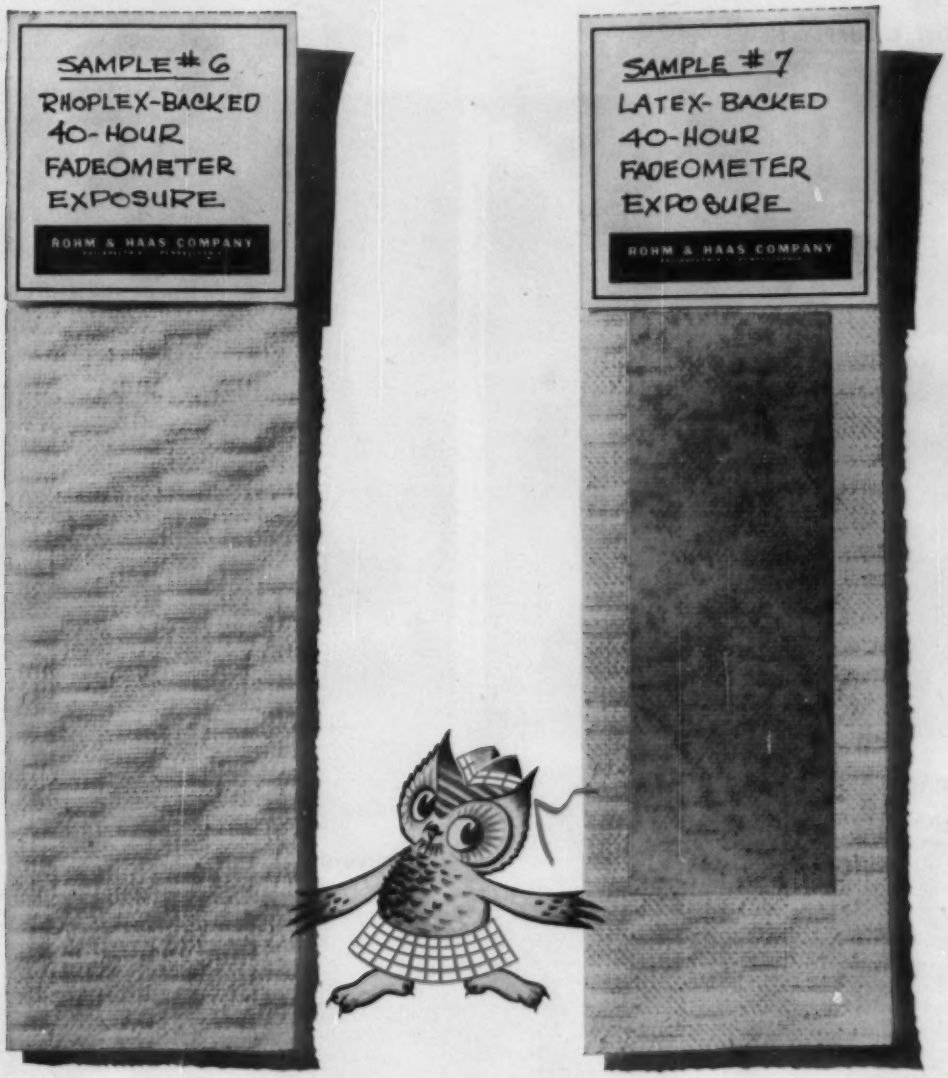


Spinning-Frame Motor

A totally enclosed fan-cooled motor that prevents spinning-frame ring-rail grease, dirt, waste thread and lint, and drippings from entering the housing has been announced by Diehl Mfg. Co., Finderne Plant, Somerville, N. J.

The motor, type DIL, is small in size but can operate at a continuous 15% overload. It is made in the new NEMA frame sizes and may be installed under spinning and twisting frames to save space. It is also adaptable to other textile machines.

Circle T-18 on Reader-Service Card



Which fabric has the RHOPLEX backing?

Even 40 hours in a Fade-O-meter couldn't discolor or stiffen the backing of the automotive upholstery fabric sample at left. It's made with RHOPLEX resin! But the latex backing on the other sample became badly discolored and brittle after the same exposure to heat and light.

That's why RHOPLEX backing resins are being used more and more on automotive and furniture upholstery, carpets, and non-woven fabrics. The acrylic film not only resists aging, but also provides excellent bonding and curbs unraveling. And unlike latex, RHOPLEX backings need no curing.
Write today to learn how RHOPLEX backings can improve your fabrics.

Chemicals for Industry

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

Representatives in principal foreign countries

RHOPLEX is a trade-mark, Reg. U.S. Pat. Off and in principal foreign countries.

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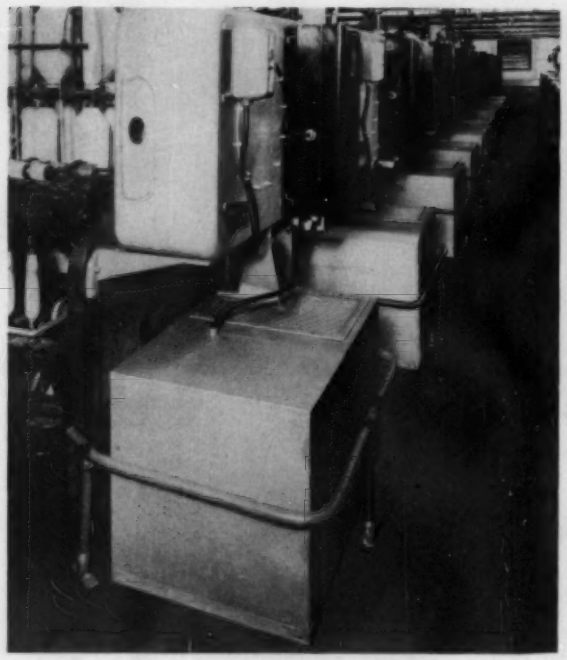


Heat-Removal System

A heat-removal system that removes unwanted heat from spinning rooms has been introduced by Bahnson Co., Reynolds Bldg., Winston-Salem, N. C.

The system removes frame-motor heat and vacuum-collection heat, provides more uniform air conditions by the elimination of concentrated motor-alley heat, and cools the entire room by exhausting the warm air.

The system has the flexibility and convenience of a unit system and can be combined with end-collection equipment. In the event the exhaust-air fan becomes inoperative, the vacuum-collection units continue their normal operation.

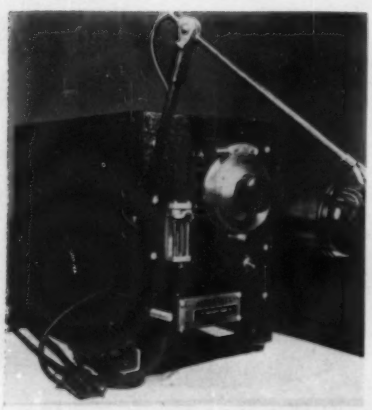
Circle T-19 on Reader-Service Card

Lint-Percent Tester

A ratio balance for the rapid determination of the percent of lint in raw cotton has been announced by Special Instruments Laboratory, Inc., P.O. Box 2108, Knoxville, Tenn.

The instrument is read directly without mathematical calculations and is calibrated to indicate lint percent from 15 to 60%. A 50-gram sample is used.

Circle T-20 on Reader-Service Card



Fiber Tester

The GFB Fiber Vibrascope for measuring the linear density or denier of single fibers and yarn has been announced by G. F. Bush Associates, P.O. Box 175, Princeton, N. J.

The instrument operates by vibrating a variably weighted fiber of preselected length at constant frequency. An unskilled operator can read the findings directly from a dial about 1 min. after the material is inserted in the tester. Range is 1 to 100 den. for Model A1; Model A2 can measure up to 1,600 den.

Circle T-21 on Reader-Service Card

Hosiery-Packaging Machine

Process Machinery Co., Durham, N. C., has introduced a new and improved Berrypak-er, Model 200, which is adaptable to all types and sizes of anklet and knee-length hosiery in stretch nylon, blends, and cottons.

Heavy bobby sox can be packaged and cuffed before removal. This is possible because an outside rod will retract to enable the operator to cuff both socks at the same time. The insert is in position, and the complete package is removed.

The device is available in two models: one is for men's and large-size children's goods, and the other is for children's and boys' goods.

Circle T-22 on Reader-Service Card

Synchronous Speed with Induction Simplicity

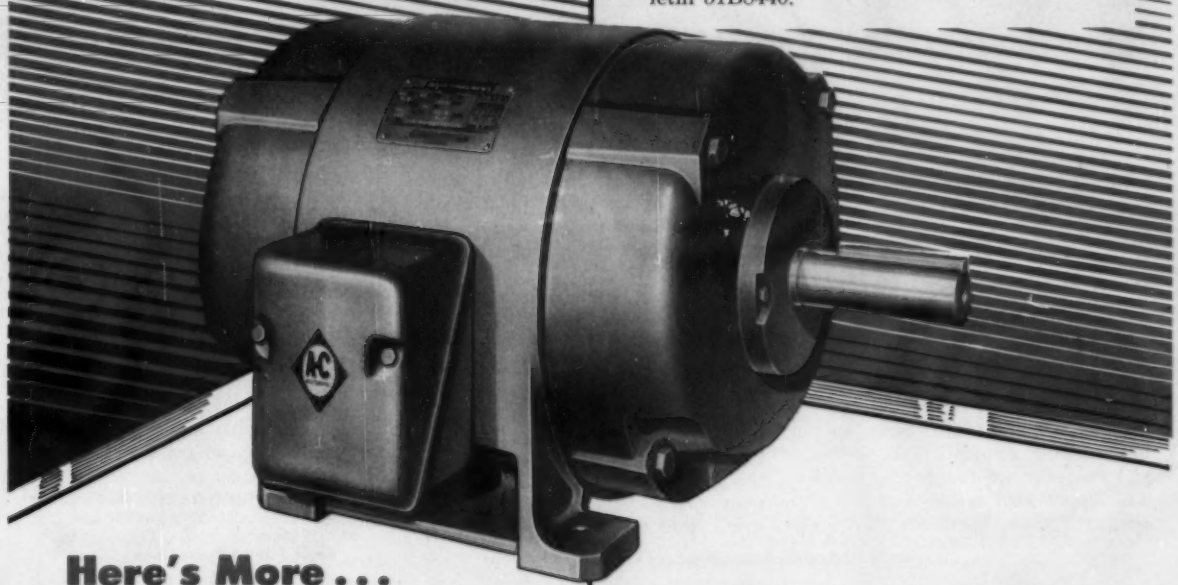
New *Synduction* Motor

...has uses in:

- Synthetic Fiber Production
- Wire Drawing
- Plate-Glass Conveyors
- Packaging Machinery
- Food Processing
- High Speed Cameras
- Metering Pumps
- Electronic Computers
- Printing Presses
- Frequency Converter Sets
- Drives for Electronic Power Supplies
- Continuous Bristle Cutting

Do YOU Have an Application?

Allis-Chalmers engineers are anxious to help you determine where *Synduction* motors can improve your operations. Call your A-C office or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin, for Bulletin 51B8440.



Here's More...

- **Constant speed, regardless of load or voltage, depends only on frequency**
- **Synchronized speeds for a number of motors**
- **Adjustable speed by frequency control at any speed setting**

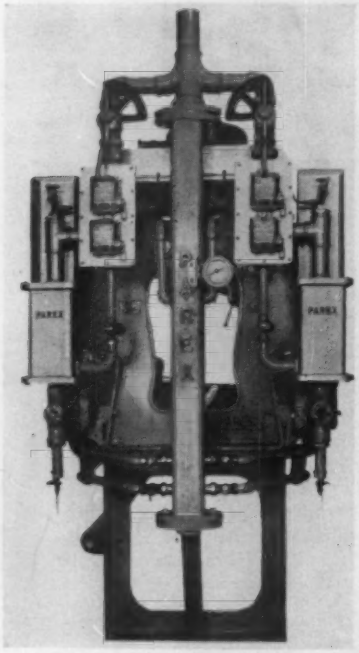
Allis-Chalmers new development—the *Synduction* motor — now makes these characteristics available at low cost. The sturdy frame and simple design, similar to that of a squirrel-cage motor, eliminates collector rings, brushes and rotor insulation — cuts maintenance. Other important advantages include across-the-line starting, wide range of speeds and high efficiency.

Synduction is an Allis-Chalmers trademark.

ALLIS-CHALMERS

A-5118

For more data, write this page number on Reader-Service card. →



Singeing Machine

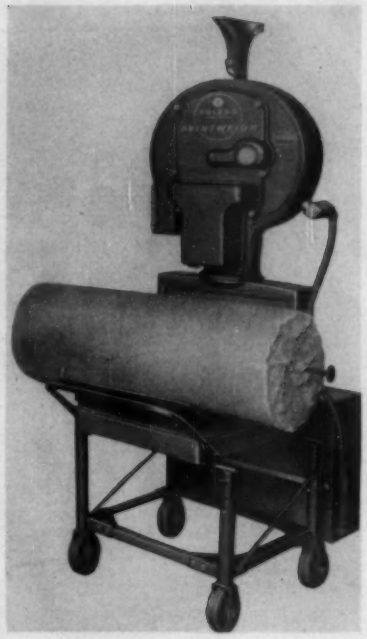
A complete singeing range that features greatly increased flame travel by means of the burner design has been announced by Ernest Turner & Co. (Salford) Ltd., 3 W. Burton Rd., Salford 5, Lancashire, England.

The range can be supplied with both plate- and flame-singeing units as well as auxiliary drying, brushing, steaming, and final quenching equipment.

The burners are designed so that the flame travels well up into a section of the fabric that is guided into loop form by cooled rollers. Both sides are singed in one run by suitable guiding to the two burners that make up the flame-singeing unit.

The burners are available in both gas- and fuel-oil-fired models.

Circle T-23 on Reader-Service Card



Improved Lap Scale

An improved Printweigh lap scale that conceals the visual weight from the operator until after the print is made has been announced by Toledo Scale Co., Toledo 1, Ohio. This feature prevents manipulation of the scale to bring off-weight laps within tolerance; and the printed tape can be removed only by authorized personnel.

The scale automatically supplies the following production information:

Printed record of each lap weight

Data for determining the total pounds of usable fibers

The number of good and rejected laps

Basis for measuring operator efficiency

Circle T-26 on Reader-Service Card

High-Pile Knitting Machine

Model 4/RY, a knitting machine for making high-pile fabrics, has been announced by Mellor Bromley & Co. Ltd., Leicester, England. The machine has eight feeds and produces about 11 yds. of fabric per hour.

The machine has a 10-cut 24-in.-dia. cylinder, and it also has a dial. Conventional latch needles are used in the cylinder, while the dial holds special loop-forming elements.

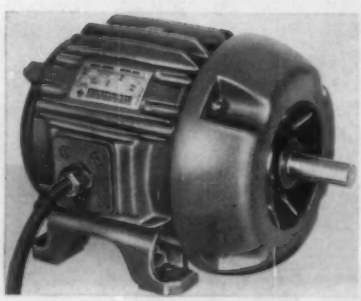
Two yarns are fed to the needles. The upper yarn is fed over the dial elements, while the lower yarn knits the base jersey stitch. The dial can be raised to make fabrics with a pile up to $\frac{7}{8}$ in.

The dial elements can be selected so that odd ones receive a pile yarn at one feed but not at the next. This practice makes a lighter pile but locks the loop in better when it is cut.

An independently driven disk cutter works underneath the dial elements to cut the pile loops.

Four yarn-tension devices feed four yarns each. Two opposite devices feed the ground yarns. The other two devices, which are gear driven at a higher speed, feed the pile yarns.

Circle T-24 on Reader-Service Card



Fan-Cooled Textile Motors

Fan-cooled totally enclosed textile motors, type GZQ Quick Clean, are available in $\frac{1}{2}$ to 30 hp. from Allis-Chalmers Mfg. Co., 1056 S. 70th St., Milwaukee 1, Wis.

The motors have sealed and prelubricated double-width single-row ball bearings. The bearings cannot be damaged by overlubrication or underlubrication.

Circle T-25 on Reader-Service Card

Plush Shipping Reels

Pile fabrics of all kinds that require face protection in shipping can be wound on throwaway reels marketed by Timron Dev. & Mfg. Co., Riverside, N. J.

The cardboard containers are 20% smaller and 20 lbs. lighter than the usual reusable reels. Fabrics shipped on the cardboard reels can be unwound directly onto the cutting table.

Circle T-27 on Reader-Service Card

CONTINUED ON PAGE 226

LOTOL®

BACKS UP your carpet sales story!

Tufted carpeting is really catching on with value-conscious homemakers. One big reason is this carpet's all-important backing of rubber-plastic. It's your big value story!

Show your customers how rubber-plastic backing:

- **Permanently anchors the pile.**
- **Substantially improves hand and body.**
- **Maintains dimensional stability. (eliminating puckering and shrinking)**
- **Permits repeated washings without fear of breaking down the backing.**
- **Prevents raveling at seams and edges.**
- **Prolongs carpet life.**

This backing material, custom-compounded by Naugatuck under the trade name Lotol, adds greatly to the quality characteristics of the carpet... permits substantial savings in its manufacture... makes possible its popular price!

Naugatuck will gladly work with any carpet manufacturer to provide a Lotol compounded to meet its requirements and price.

NAUGATUCK CHEMICAL
Carpet Fabricating Accessories:

RUG-SEALZ®—Carpet seaming adhesive.
KWIK-GRIP® TAPE—Carpet seaming tape with metal grippers for face-up sealing.
RUG-SEALZ TAPE—Seaming tape ideal for rubber-backed cotton and synthetic-tape-yarn carpeting.
HEAT-SEALZ TAPE—For binding rugs and fabricating rubber cushions.
AUTOMATIC IRON with attachment for applying rug binding.

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United States Rubber
Naugatuck Chemical Division
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BRANCHES: Akron • Boston • Chicago • Memphis • New York • Philadelphia • Mfg.: Naugatuck • Gastonia • Los Angeles • CANADA: Latex Div., Dominion Rubber Co., Ltd., Montreal • Cable: Rubexport, N. Y. Rubber Chemicals • Synthetic & Reclaimed Rubber • Plastics • Agricultural Chemicals • Latices

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Latex

Chemigum Latex 247 . . . recommended for carpet backing, fiber bonding, and as an ingredient in slashing formulas, exhibits good resistance to light and heat. The product has good adhesive properties and is less sensitive to metal ions than natural rubber. The latex is compatible with water-soluble thermosetting resins and can be cured by conventional means. Goodyear Tire & Rubber Co., Chemical Div., Akron 16, Ohio.

Circle D-1 on Reader-Service Card

Shrinkproofing Chemical

N-Acetyl DL-Homocystine Thiolactone . . . may provide a new means of making wool shrinkproof. The chemical modifies the structure of the wool molecule by forming new peptides and provides new cross linkages in the form of disulfide bonds. The product works at low temperatures under mildly alkaline conditions. Schwarz Laboratories, Inc., 230 Washington St., Mount Vernon, N. Y.

Circle D-2 on Reader-Service Card

Wool Colors

Cibalan Brilliant Red BL . . . produces bright shades of red on wool, nylon, or silk that have excellent lightfastness. **Cibalan Blue FBL** . . . which works well with other Cibalan colors, produces slightly reddish-blue shades of good all-around fastness. The color is recommended as a base for navies and for toning clean violet shades. Ciba Co., Inc., P. O. Box 25, Village Station, New York 14, N. Y.

Circle D-3 on Reader-Service Card

Basic Dyes

Deorlene Brilliant Yellow 5GL . . . produces bright greenish shades of yellow on Orlon and Acrilan that have very good fastness to light and washing. **Deorlene Brilliant Red R** . . . gives bright, rich reds. **Deorlene Blue BR** . . . dyes slightly reddish-blue shades that build up well in the darker shades. Ciba Co., Inc., P. O. Box 25, Village Station, New York 14, N. Y.

Circle D-4 on Reader-Service Card

Direct Black

Solanile Black Pat. . . . suggested for printing cotton, rayon, acetate, wool, and silk fabrics. The color exhibits excellent light- and washfastness. Ungreenable blacks can be produced from print pastes containing 8 oz. per gal. of the dye. Ageing by acid or neutral steaming or simply by air oxidation is possible. The color can also be applied by pad dyeing on cellulosic fibers and silk. Francolor, Inc., Paris, France.

Circle D-5 on Reader-Service Card

Azoic Black Dye

Rapidogen Black I . . . recommended for producing economical blacks, shows high tinctorial strength and produces prints of adequate lightfastness and very good washfastness. The color is not affected by resin or plissé finishes. General Dyestuff Co., 435 Hudson St., New York 14, N. Y.

Circle D-6 on Reader-Service Card

Leveling Agent

Lyogen DK . . . for direct- and vat-color dyeing, helps reduce differences in strike in various colors. The product has no affinity for cellulose and does not affect finishing procedures. The leveling effect helps to reduce listing, ending, and shading in jig and pad dyeing where temperatures may fluctuate. Sandoz Chemical Works, Inc., 61-63 Van Dam St., New York 13, N. Y.

Circle D-7 on Reader-Service Card

Nonionic Softener

Emersoft 7700 . . . provides an excellent softening effect on a diversified line of cotton fabrics. The product is supplied as a 95%-active paste that is easily dispersible in warm water and will work satisfactorily over a wide pH range. Emery Industries, Inc., Cincinnati, Ohio.

Circle D-8 on Reader-Service Card

Fluorescent White Dyes

Fluorescent white dyes depend upon ultraviolet rays for the brilliant white effects they produce on fabrics to which they are applied.

The sensation of whiteness is caused by blue light reflected from the fabric, which drowns the slight yellowness or traces of other color that may be left in a bleached fabric. Fluorescent white dyes mask yellowness very effectively and to some extent also exert an actual lightening effect on the basic shade of white. They are most effective when the fabrics are viewed in daylight or a light source containing ultraviolet rays.

These dyes differ from conventional bluing materials, which may mask yellowness but add visible color to a white fabric. The ultimate result of adding visible color to a white fabric is the effect known as tattle-tale gray.

Fluorescent white dyes are now available for several types of fibers. The early ones were workable only on cellulosic fibers.

From a paper delivered by Eugene Allen, American Cyanamid Co., before AATCC

How To Check Strength

The evaluation of a fluorescent white dye is not as simple a matter as checking the money value of a conventional dyestuff.

The reason for this is two-fold: fluorescent white dyes are normally applied in very weak concentrations, and variations up to 10% of actual dye present in a fabric are just visible. Besides this fact, it is necessary to have an ultraviolet lamp and a fluorimeter in the mill laboratory to test these products.

CONTINUED ON PAGE 222

For Every

CLEANING JOB WITH ABSOLUTE SAFETY

(Reg. U.S. Pat. Off.) **IMMUNOL**

Proven by 11 Years of Continuous Use in Leading Mills—Everywhere

Replace Fire Hazard Solvents!

IMMUNOL cleans efficiently, effectively and inexpensively. It *eliminates hazards of fire, rust and toxicity* in addition to other undesirable conditions.

Many money-saving benefits accrue from using IMMUNOL, e.g., insurance rates are reduced; damages resulting from use of harsh detergents, alkalies and solvents are eliminated; costly protective garments and devices are not needed; the labor costs involved in applying IMMUNOL are the lowest.

Dirt, soil, oil grease size or mill film are easily removed by IMMUNOL which does not effect the properties of fabrics nor leave a deposit which may cause "lap ups". IMMUNOL is a fast, effective general cleaner for mill equipment of all types and an excellent cleaner; it cleans metal, woodwork, plastic and ceramics.

IMMUNOL dissolves instantly in water and can be applied hot or cold by any method. When mixed to proper proportion and ready to use IMMUNOL costs only 13c a gallon.

NON-FLAMMABLE
IMMUNOL replaces dangerous and combustible solvents and cleaners.
INHIBITS RUST
IMMUNOL leaves an invisible protective, rust-proof coating.
SAFE TO SKIN
Workers can wash their hands in IMMUNOL without any after-effect.
NON-TOXIC
IMMUNOL is odorless, positively harmless and easy to work with.
IMMUNOL

IMMUNOL is used to great advantage in the following processes:

Bleaching	Equipment	Rust Proofing
Blending	Finishing	Slashing
Boarding	Full Fashion	Spinning
Carding	Inspection	Spooling
Circular Knitting	Knitting	Throwing
Cleaning	Maintenance	Tricot
Combing	Opening	Tufting
Dyeing	Packaging	Twisting
Drawing	Picking	Warping
	Printing	Weaving
	Roving	Winding

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4th and BRISTOL STREETS, PHILADELPHIA 40, PA.

For more data, write this page number on Reader-Service card. →

THIS IS NO. 121 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

PARAFFIN ATTACHMENT WORKS BETTER WHEN OILED PROPERLY

What happens when you get too much oil on the Governor Controlled Paraffin Attachment used on the Roto-Coner® Winder? Well, here is what one of our Sales Engineers had to say after he found such a condition in a mill:

"I examined these paraffin attachments very carefully and found that the tension discs were not rotating freely on the pins for the reason that their fixer had been a little too heavy handed with the oil on the top of the pin, and the oil had run down getting onto the bottom of the disc center, gumming up the brakes and causing an accumulation of lint."

The Engineer went on to state that he demonstrated the proper functioning of this device by wiping the parts dry. He was able to show that with the proper care the attachment would give excellent service.

The braking device of the paraffin attachment turns on the pin (fig. 1). It is important that the governor arms which are attached to the holder be completely free, for they rely on centrifugal force to swing them outward against the brake drum. In this way they can control the speed of the paraffin cake and stop it quickly if an end breaks.

However, if too much oil is allowed to get into the mechanism it will eventually flow onto the governor arms and cause them to become gummy. Small dirt particles and lint that are in the air will then stick to the arms until they become so clogged that they won't swing out against the brake drum. When this happens the paraffin disc will turn too freely, and cause the yarn to wrap around the center post when an end breaks.

In contrast with the condition just mentioned, if enough dirt accumulates it may even retard the rotation of the disc. This in turn may put extra tension on the yarn.

It is important to oil the Governor Control Paraffin Holder carefully. Just one drop of oil on top of the pin is all that is required for proper lubrication and any excess that runs down the side of the pin should be wiped off.

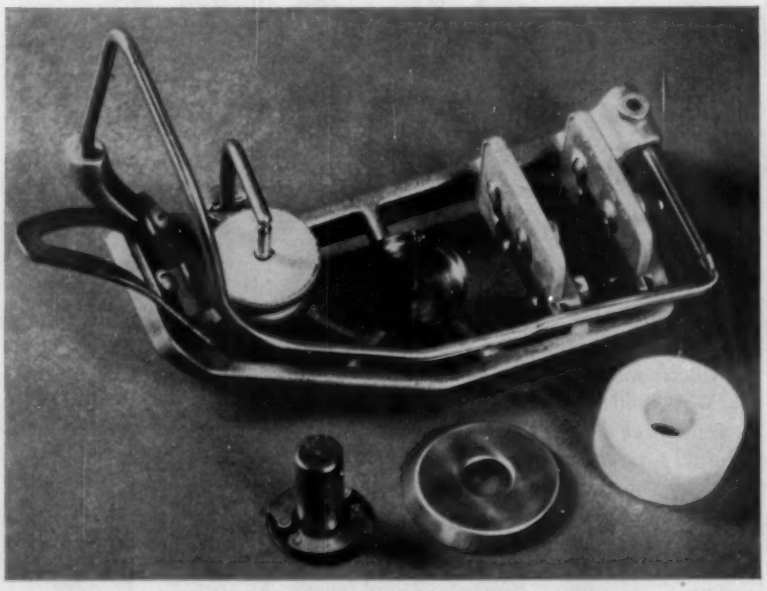

Fig. 1 — Tension Holder showing Governor Controlled Paraffin Attachment with the paraffin holder and paraffin disc removed. A drop of oil placed in the cup-like depression at the top of the pin lubricates the device. Any excess oil that runs down the side of the pin should be wiped off; otherwise the paraffin holder, left foreground, won't turn properly.

March 1957 — 23.6.9

Winding and Twisting Machinery for Natural and Synthetic Yarns

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Do you need help on a technical problem? TEXTILE WORLD is at your service in helping solve problems in yarn manufacturing, weaving, knitting, dyeing, finishing, and other textile operations. A large staff of mill men, consultants, and other experts are available for authoritative answers. Send your problem to the Editor, Questions and Answers, TEXTILE WORLD, 201 E. Coffee St., Greenville, S. C.

Magnets Drive Shuttles On One Circular Loom

Technical Editor:

We've heard about a loom where the shuttle is driven magnetically around a circular track. How does this loom work? (1261)

A circular loom that weaves tubular cloth at the rate of 160 to 180 ppm. is made in France.

Two ordinary beams of warp are mounted at the bottom of the loom, and the ends are drawn through a circular reed above the beams. The ends are then entered in double circular sectional harnesses to form two warp sheets. Above the harnesses is a circular stationary reed through which the warp is entered and on which the shuttles ride.

The reeds, harnesses, shuttle blocks, and beat-up motion are all secured to a central upright shaft driven at its lower end by a motor.

The shuttles consist of round metal containers in which hollow-cop yarn is placed. The inside yarn end is threaded through a heavy metal needle above the container. This needle lays the yarn in the warp shed ready for the beat-up.

The shuttles are held in position and are driven by magnetic blocks secured to the central shaft.

The beat-up motion consists of a ring gear equal in diameter to the path of the shuttle and a wheel that follows each shuttle. The wheel has teeth that mesh with the ring gear and extend beyond the ring-gear teeth. The wheel teeth force the pick tightly into the cloth between each pair of warp yarns.

Cloth take-up rolls are located above the beat-up ring.

Latest Wool-Jersey Finishing Techniques

Technical Editor:

Can you give us some information on wool-jersey finishing? (1275)

The technique practiced in wool-jersey finishing depends on the fabric type and the finish that is desired. Fulling is done to shrink the fabric and to burst the yarns to bring out the ends of the fibers to start the nap more gently than the napper would.

A heavily napped fabric would need to be firm and would require more fulling than a softer fabric. For finishing the firmer fabrics, a soaper, a fulling mill, and a cloth washer are recommended.

For fabrics requiring a medium fulling, a combination fulling mill and washer is suitable. For fabrics that need little fulling, a combination washer and fulling mill with lambtail attachments is suggested.

Soaping is generally the first operation. If the goods are put in the mill dry, they would flock before they became saturated with soap and start to full. After soaping, they are fulled and washed.

If the production is small but the goods need a fair amount of fulling, you could get by with the soaper and combination mill and washer. If the goods do not need much fulling, the combination washer and mill might serve your purpose.

Four mills handling 8-oz. jersey have different techniques, but they all get similar and satisfactory results. One mill first scours, dyes, and then fulls; another mill fulls first, scours, and then dyes; while the other mills scour, full, and then dye.

Knitted goods require more care than woven goods. Before starting to finish them, careful inspection and mending is required because a broken thread can do great damage. The soaper, mill, and washer should be run slower on knitted goods than on woven goods.

Less pressure should be used on the top rolls in all processes involving squeezing. In the fulling operation, knitted goods are apt to run more dry than woven goods; so the soap solution or fulling agent in the goods in the mill should be checked.

Fulling is the most important operation in wool-jersey finishing. Where goods are piece dyed, the scouring must be complete and uniform for the dyer to get more-uniform dyeing.

A pair of 9-in.-dia. squeeze rolls in place of the conventional whiproll is recommended in the dye kettle. Stainless-steel equipment is recommended for all finishing operations because wool slivers and projecting screws in wooden equipment easily snag knitted fabrics.

Filament-Yarn Diameters

Technical Editor:

What are the diameters of 30-, 40-, 50-, and 75-den. nylon, Dacron, and acetate yarns? (9841)

Here are the approximate diameters of various filament yarns:

Denier	Number of filaments	Diameter in microns		
		Nylon	Dacron	Acetate
30	10	75	..	..
40	13	85	..	..
40	34	..	85	..
50	17	95	..	..
55	14	..	..	95
70	34	122	110	..
75	20	..	..	110

The diameters of filament yarns are fairly constant in the range of 15 to 60 tpi. In the range of 5 to 15 tpi., the diameters of the yarns increase about 25 microns over those given above.

New Wool Treatments Prevent Dyestuff Take-Up

Technical Editor:

Is there a process that inhibits or prevents the take-up of dyestuff on woolen goods? (1276)

A process for treating wool to inhibit or prevent the take-up of dyestuff has recently been announced in France. The process, which is known as the Maifoss process, is used to obtain a melange effect on fabric in one dyebath. The process is based on the use of condensate products of urea and formaldehyde.

A technique, known as the Harrison process, has recently been introduced in England to give two-tone and two-color effects on wool materials by immersing the wool in one dyebath. Practically any shade or color can be produced by the process, although some colors come out more effectively than others.

The time taken for the shading or patterns to be fully developed is no longer than that taken for ordinary dyeing. Applications, so far, have been made on sweaters where a garment bottom may be a dark shade and the shade gradually changes toward the top of the garment. Designs on full-fashioned knitwear have also been made.

How To Figure Slasher Efficiency

Technical Editor:

How can we determine the efficiency of our slashers and warpers? (1259)

If you want figures to show what machines are actually doing, you can use this formula:

Actual delivered yards per minute ÷ machine-rated yards per minute = percent efficiency

If you want to set up figures on which to base piece rates or other figures, the doffing, creeling, and maintenance downtime must be considered. This downtime will vary for the different yarn sizes and beam diameters.

When you have determined by timestudy or other methods how much downtime is necessary, this time is subtracted from the production time, and machine efficiency is figured the same as above.

For example, if the delivery speed is 70 yds. per min., the machine downtime is 16.5%, the adjusted expected machine efficiency is 58.5 yds. per min., and the actual delivery is 50 yds. per min., the machine efficiency is:

$$\frac{50}{58.5} = 85\%.$$

Small Emery Stick Has Many Mill Uses

Technical Editor:

Can you give me more information on the kink "Use an Emery Stick for Shuttle Maintenance" [Textile World, Aug., '56, p. 154]? (1263)

The emery stick is a small board covered with emery and sold in bundles of twelve each. Fixers use these sticks for cleaning around shuttle eyes or tension.

Fixers usually neglect the section of wood directly back of the shuttle tension, and this place is often a source of broken and chafed ends. The use of emery sticks avoids cutting the metal eye, which often occurs when small files are used.

The sticks can be cut in half lengthwise and used to rub out gum in tension pads when greasy yarns are run. Usually, an emery stick will last for a dozen or more jobs.

They can also be used when small slivers are caused by the removal of a shuttle tension. For this job, they are better than a file, since a file cuts too deep if a fixer is not careful.

The emery sticks are also good for cleaning small abrasive particles out of a loom reed. For this purpose, sharpen the ends of the emery board so they will pass between the dent wires. Rub up and down in the reed to remove the abrasive particles.

Humanics — **A TW Brief**

Part of the Job

Jeffrey Poole was in the doldrums. He was a weaver, and his production was way below par. Seemed as though everything had gone wrong lately. Then Wade Humphrey, the second hand, stopped by.

"Hello, Jeff!" he said. "Sorry to hear about your wife's illness. How's she getting along?"

"Oh, she'll be okay! Sure keeps me busy, though, working in here, keeping house, and looking after the kids."

"Well, if there's anything I can do, let me know. And, by the way, soon's the missus gets on her feet, I want you to go with me to Grant's Lake. I've heard the bluegills and bass down there are hitting the bait before it reaches the water!"

The second hand went on down the room to another employee and continued his work. Work? Yes, because a successful supervisor spends a big part of his time in seemingly idle conversation. Yet it is time well spent.

Wade did not mention the job to Jeffrey, and he did not point out his poor production record. However, his approach got results far beyond anything that a bawling out would have accomplished.

Jeffrey began starting looms with a new vigor because he realized that someone else did understand his problems and was willing to help and that he "belonged."

Check Knock-Off Gears For Off-Standard Laps

Technical Editor:

We have 39 pickers that run 94 to 100% good laps; but one picker makes laps that weigh correct on the lap scales, but they are on the heavy side on the lap-meter record. Instead of 15 oz. per yd., they weigh 15.4 oz.

We've checked the evener, calender section (which is chain driven), screens, and air; and all seem OK. What is your opinion? (1253)

Because the total weight of the lap is correct and the weight per yard is on the heavy side, the lap must be shorter than standard.

It sounds as though this picker might have different gearing from your other pickers. You may have put the same knock-off gear on this picker and adjusted the evener to give you the standard total weight. The knock-off gear you have used might have resulted in a shorter lap, and the adjustment of the evener has given you a heavier weight per yard.

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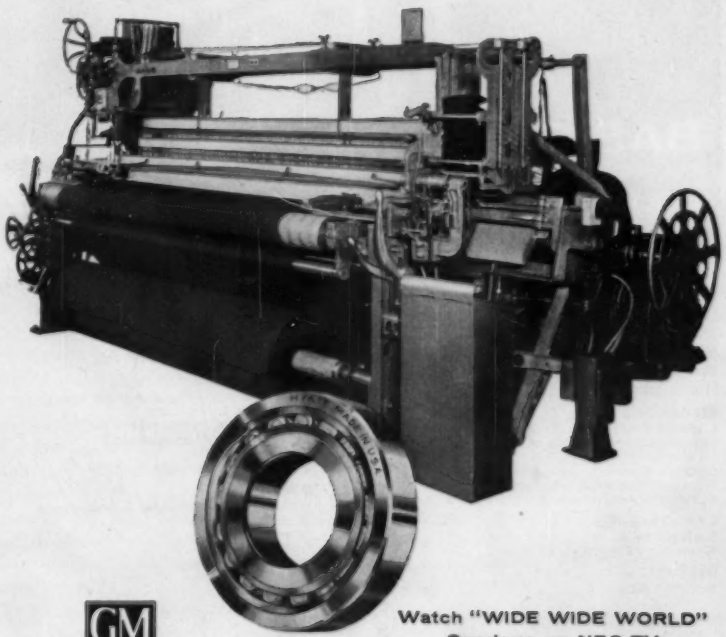
Whatever type of textiles you produce, it's *good business* to standardize on new HYATT Hy-Rolls. They're built to run *smoother* and *longer* than any roller bearings you have ever used. HYATTS can save you up to 90% on lubrication . . . up to 40% on power . . . prevent costly "seconds" caused by inaccurate settings and oil splatters. *Be sure to specify HYATT Hy-Roll Bearings on all your new or modernized machines . . . it pays!* Hyatt Bearings Division, General Motors Corporation, Harrison, N. J.



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Sulfuric Acid

RAYON MANUFACTURE
Sulfuric Acid
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Sodium Sulfite
Sodium Bisulfite, Anhydrous

DETERGENT
Disodium Phosphate, Anhydrous
Trisodium Phosphate
Tetrasodium Pyrophosphate
Sodium Tripolyphosphate
Sodium Silicate
Sodium Metasilicate

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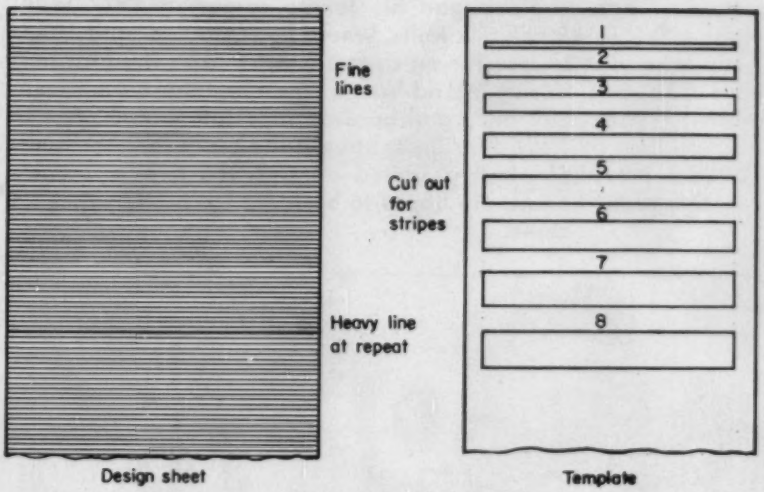


Save Time in Making Knitted Stripe Designs

Making knitted stripe designs is a costly business where the job is done solely on the knitting machine. The job can be speeded up and materials and machine time saved by painting the design on a design sheet.

Have faint lines printed across the design sheet to represent courses. Each line represents one course. A heavier line can be printed at each 64th line to represent one repeat for a 64-feed machine.

A cardboard template makes the job of painting easier. Cut out spaces on the template so as to leave a one-feed stripe uncovered, a two-feed stripe uncovered, and so on. The template is then placed on the design sheet, and a short-bristle brush is used to paint the design. (K-3315)

Inspecting Discarded Parts Cuts Loom-Supply Cost

To keep loom-supply cost as low as possible at our mill, we've set up a simple little system of parts inspection. Now, before a loomfixer can receive a new part from the supply room, he must turn in his old part to the supply clerk.

We have a cabinet with a compartment for each second hand in the weave room. The supply clerk puts the used loom parts from each second hand's job in his compartment.

Each day before the second hand leaves work at the end of the shift, he checks all the parts. Parts removed needlessly can be traced by the written orders to the loomfixer who removes them.

The second hand holds these parts and checks them with the loomfixer as soon as he returns to work on his next shift. As a result, loomfixers are careful to remove only worn parts.

Since we installed the system, loom-supply costs have been reduced greatly. (K-3316)

Start Comber Laps On Denim-Covered Cylinder

We formerly made laps on wooden cores for our combers. Before starting the lap winder, it was necessary to wet down the wooden inserts so the fibers would stick. This process was a messy job, and the fibers did not always stick to the core. Sometimes the lap would have to be restarted.

We substituted light steel cylinders (arrow) covered with denim for the wet wooden cores. The result was excellent. Fibers adhere to the denim better, and the wetting process was eliminated. Now we make better laps and lose no time getting them started. (K-3249) *Falls Mfg. Co., Granite Falls, N. C.*

Regrind Hand Cards For Garnett Machines

Stripping garnetts is a rugged process. The wire in the hand card dulls very quickly and loses its stripping efficiency, especially if stripping is done under power.

The job can be done better by touching up or restoring the wire points on a small grinding roll or on a pulley covered with emery fillet that is used in wool and cotton card rooms. You will be pleasantly surprised at the increased efficiency. (K-3332) *The Howard Way.*

$500 Prize Winner

Charles R. Batzer, of Lancaster, Pa., has received $500 as the 1956 annual prize in TEXTILE WORLD'S Kink contest. His winning Kink, "Jig Aligns Transfer Arms on C&K S-6 Looms," appeared in the December, 1956, issue of TEXTILE WORLD.

Mr. Batzer, superintendent of Widder Bros. Mill, Inc., Lancaster, has worked in this plant for the last 30 years.

He began his textile career in 1917 with Stehli Silk Mills, where he remained until 1927 except for an overseas hitch with the Marines during World War I. Then he joined American Silk Mills and became superintendent.

Widder Bros. bought the plant in 1941, and Mr. Batzer stayed on with the new management. He hopes to be there for many years to come.

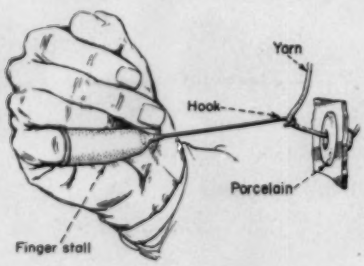
Electric Push Button Improves Cloth Grading

Graders in our cloth room are tempted to let defects go by when they aren't sure how to grade an unusual defect. The head grader is sometimes not in sight, and the regular graders don't bother to wait for her.

We've overcome this difficulty by installing a simple system that brings the head grader immediately. A 40-w. electric bulb is mounted over each grader's inspecting machine. A cord runs from the light bulb to the edge of the cloth being graded and has a push button on the end.

When the head grader is needed, an inspector presses the push button to turn on the light. Since the push button is at the inspector's finger tips, she doesn't even have to reach for it.

Then the head grader comes at once when she sees the light. No inspection production is lost from waiting, and bad goods do not go to our customers. (K-3140) *Woodside Mills, Simpsonville, S. C.*



Thread Guides Faster With a Finger Hook

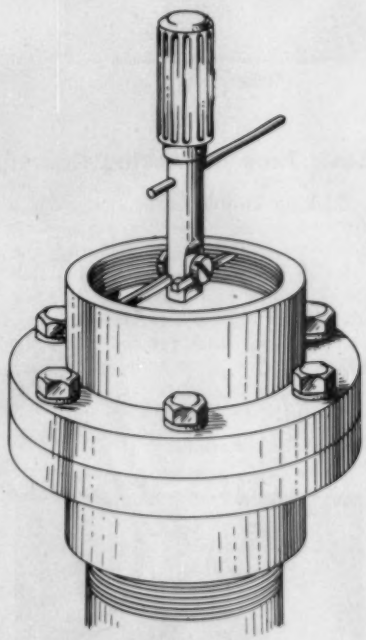
A small hook fastened to a finger stall offers a quick and easy way to thread guides on quillers and other textile machines.

The usual method is to twist the yarn into a lumpy point and guide it through the hole with one hand. With the finger stall, the hook is pushed through the guide hole and the yarn is pulled through the hole.

In making the finger stall, place it on the little finger so that it won't interfere with knot tying. Fashion the hook from wire and tape it to the stall. Make the hook any length that suits your purpose. (K-2955) *H. E. Wenrich, Berwick, Pa.*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

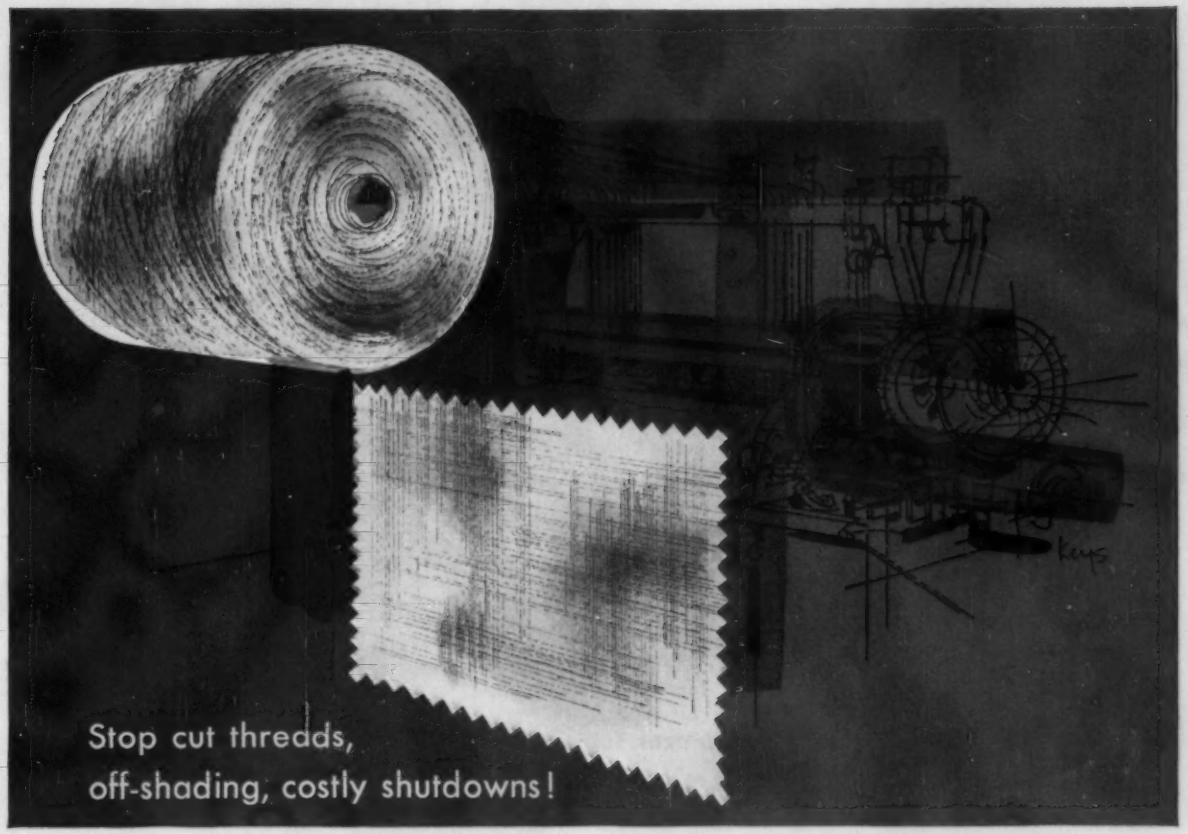
Send in your Kink now.



Tool With Adjustable Blades Cleans Internal Threads

When you are installing pipes and other objects with internal threads, it is often necessary to clean dirt and sediment from these threads before assembling.

A handy tool for cleaning internal threads in various-size holes can be made as shown in the sketch. The blades should be made of tool steel. (K-3281) *Chas. H. Willey, Penacook, N. H.*



Use MORTON CHEMICAL GRADE '999' Salt

'999' is the all sodium salt (sodium chloride and a trace of sodium sulphate) that prevents dyeing failures caused by salt high in calcium.

Morton Chemical Grade '999' Salt makes it possible for you to get softer finishes, more even shades, greater color intensity. That's because Morton '999' is a low-cost, high purity evaporated salt, free of objectionable calcium and magnesium compounds.

Morton Chemical Grade '999' is more than 99.9% pure sodium chloride, recommended for use whenever commercial calcium-free salt is required.

Available in 100-lb. bags or bulk, '999' is specifically recommended when direct salting is used in dyeing raw-stock, package, beam, beck or jig with either sulphur, direct, or naphthol dyes.

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January Prize-Winning Kink

The best Kink published in the January issue of TEXTILE WORLD, according to our reader-judges, was:

"Tuck Makes Top Clearer Work More Efficiently"

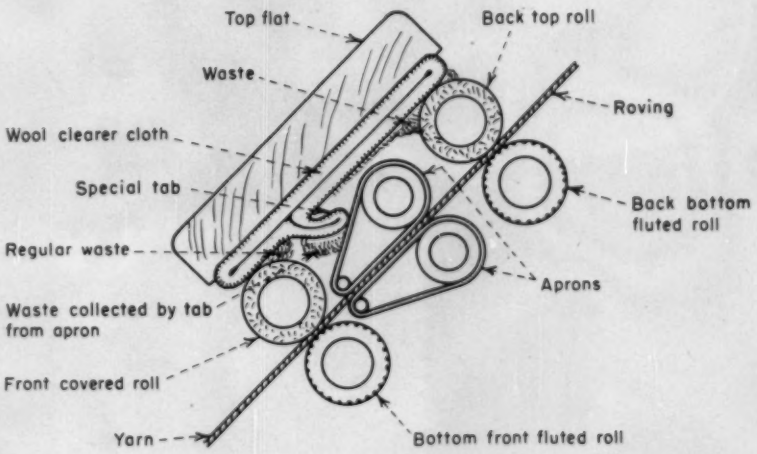
By A. J. Redmond, Gastonia, N. C.

The winner is being sent a check for $25 with the compliments of TEXTILE WORLD.

The prize-winning Kink is reprinted at the right.

Each month TEXTILE WORLD awards $25 to the submitter of the Kink judged by a panel of over 300 mill men as the best for that particular month. A new batch of Kinks appears each month, and a new group of readers acts as judges each month.

If you are asked to judge one of these days, be sure to help select the best Kink by sending back your answers in time for final tabulation. Closing date for judging is the last day of the month in which the Kink appears.

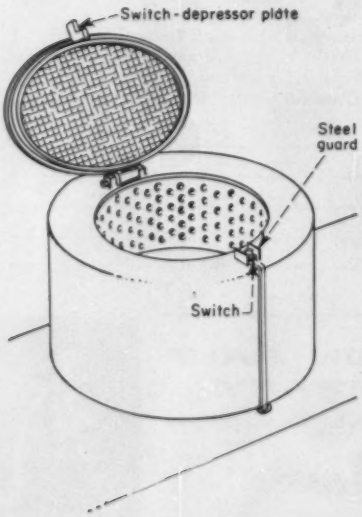


Tuck Makes Top Clearer Work More Efficiently

We used to have trouble keeping our spinning-frame aprons clean and free from oil. None of the top clearers used seemed to do the job right.

I cut a clearer cover 1 in. longer than normal and put a ½-in. tuck in it. This tuck, or tab as we call it, is placed so that it lies against the apron as illustrated.

The tab keeps lint from falling between the two aprons and feeding out with the roving. The aprons remain clean and free from oil, and cleaning time is reduced. Another advantage is that the tab, being flexible, lies against the apron at all times regardless of the roller size. (K-3273) *A. J. Redmond, Gastonia, N. C.*



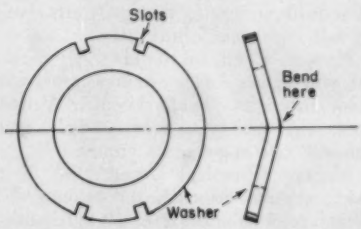
Make Extractors Foolproof With Safety Switch

Extractors that are not equipped with a safety switch can easily be made foolproof. Here's how to do it:

Mount two 3x4-in. steel plates on each side of the starting button at the front of the extractor. Attach another steel plate to the edge of the extractor cover, as illustrated, so that when the lid is down the plate will fall between the plates mounted on the switch.

The plate attached to the cover should be shaped so that the full weight of the cover will fall on the extractor body rather than on the switch. Modify the starter-button mechanism so that it will not lock in place when depressed.

With these changes, the extractor will start and run only when the cover is down. (K-3217) *H. J. Haas, Martinsburg, W. Va.*

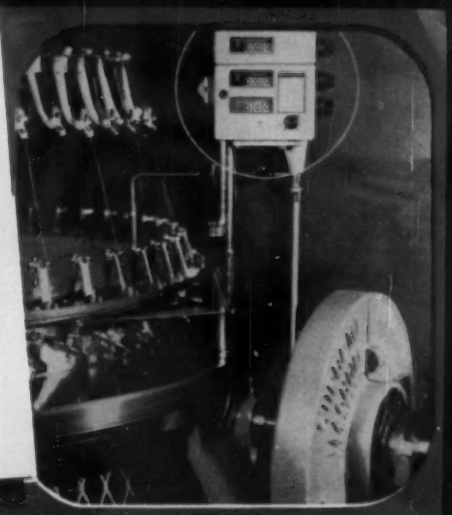


Convert a Plain Washer Into a Lock Washer

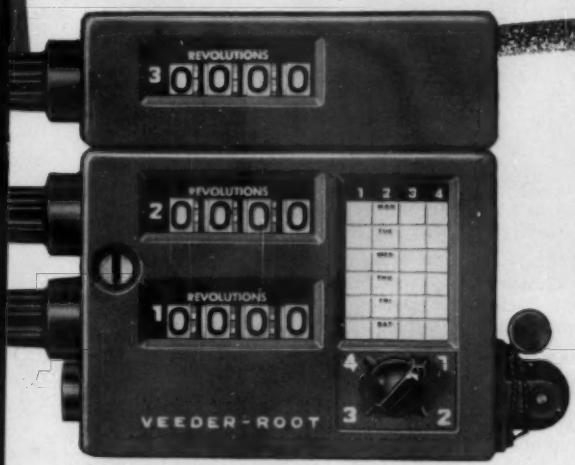
To convert a plain washer into a lock washer, put it in a vise and tap one side with a hammer to put a bend in it. The spring pressure that results will hold the nut tight as it is screwed down.

Two slots or grooves filed at each side of the washer will bite into the metal and help hold the nut even tighter. (K-3284)

In KNITTING
(as in Weaving and Spinning)
you have to COUNT
to get Accurate
COUNTROL of
Production and Costs



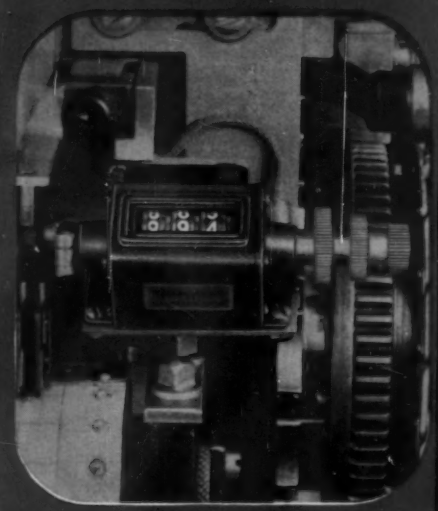
3-shift Revolution Counter on Supreme Knitting Machine.



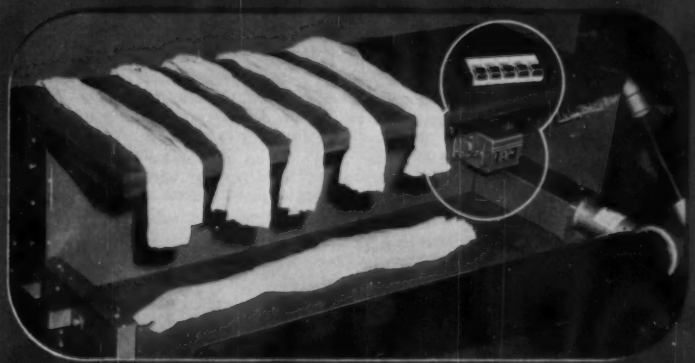
3-Shift Revolution Counter.

Every knitting machine . . . in fact, every process in every knitting mill . . . needs to be under a modern system of Veeder-Root *Countrol*. This system can be shaped to your own needs . . . so you will have a continuous, up-to-the-minute check on production scheduling . . . costs . . . quality . . . lengths . . . over-runs . . . shortages . . . and any other facts in figures you may need.

Remember, paperwork doesn't mean a thing, *unless you have accurate Countrol*. And you can count on Veeder-Root to help you in every possible way. Write:



Small Subtractive Predetermining Counter on Philadelphia Jacquard Knitting Machine.



Vary Tally and Large-Figure Hosiery Dozens Counter on Specialty Mfg. Company's "Inspectomatic" Table.

Small Reset Ratchet Counter on Textile Machine Works' full-fashioned hosiery machine.

VEEDER-ROOT

"The Name that Counts"

Hartford, Conn. • Greenville, S. C. • Chicago • New York • Los Angeles
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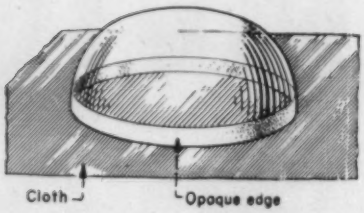


Stamp Collector's Glass Magnifies Cloth Defects

In our mill, we weave high-quality woolens and worsteds, usually in the darker shades. Because of the dark shades, the variety of materials woven, and the necessity for frequent inspections, the supervisors had a tough job.

The job of inspecting was made easier with the aid of a stamp collector's magnifying glass. This magnifier is made of a solid piece of glass in the form of a half sphere about 2 ins. in diameter.

The glass is easy to carry, fits nicely in the palm of the hand, and has no sharp edges. When the magnifier is placed with the flat side on the cloth, the slightest fault becomes easily recognizable. Being hemispherically shaped, the glass collects light; and the dark shades appear much brighter under it. (K-3172) *Henryk Eiger, Israel.*

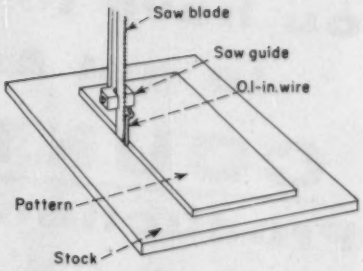
Use a Small Test Light To Check Warper Creels

In taking down and reassembling the drop-wire unit bars on Barber-Colman high-speed warper creels, the switch at the bottom of each bar sometimes fails to make contact.

A small test light made from a standard phonograph jack and a light socket containing a 110-v., 6-w. bulb will tell you if the switches are making contact. In reassembling the unit bars, leave one of the units off of each bar until the job is finished and the bars are placed back on the creel and the switches turned on.

The warper is now placed in running position, and the creel is energized as it would be if the warper were in operation. Test each bar through the hole where the unit was left off. Touch the tip of the jack against the copper buss wire, and ground the side against the bar itself.

If the switch at the bottom of the bar is making contact, the light will come on. If the switch is out, there will be no light. Be sure to use only a 6-w. light because anything heavier will actuate the stop motion and necessitate resetting the warper after testing each bar. (K-3084)



Cut Sock Shapes With A Wooden Pattern

We make our own wooden shapes for drying and shaping socks with a band-saw guide. Instead of marking the pattern on the wooden stock, I nail the pattern lightly to the stock.

To make the guide, braze a 0.1-in. steel wire to the right saw guide so that the wire is directly in front of the saw and as close to the teeth as possible.

The wire, about ½ in. long and quite stiff, follows the pattern and does not allow the saw to cut into it. If the new shape is to be larger than the original pattern, bend the wire to the right. (K-2946) *James Lavoie, Chelsea, Que.*

$500 for Best Kink in 1957 - - - $25 for Best Kink Each Month

Plus $5 to $10 for Every Kink Accepted

What Is a Kink?

Any idea that will

- Cut costs
- Improve quality
- Reduce work
- Increase production
- Make work easier

The idea may be one for improving machines, some attachment for a machine, a short-cut way of doing something, a labor-saving device—any idea at all that helps a mill man run his job better or easier.

Send in your Kink now. There is always a contest going on.

RULES OF CONTEST

1. No limit to number of entries.
2. New $25 prize contest every month, $500 prize contest for the year. Monthly contest confined to Kinks published that month, yearly to those published in calendar year 1957.
3. All Kinks paid for on acceptance; extra payment for photographs. Drawings need not be finished (clear detailed pencil sketches will do).
4. Previously published material not eligible for prizes.
5. Unless you advise to contrary, we assume we may sign your name to Kink when published.
6. Prize winners will be selected by readers, a different group each time. At least 300 will be asked to select preferred Kinks in each issue. Their votes will select the best Kinks, and their decision will be final. In cases of ties, duplicate prizes will be awarded.

Send Kinks to:
KINKS CONTEST, TEXTILE WORLD
201 E. Coffee St., Greenville, S. C.

CUTLER-HAMMER'S 4105 TYPE A SAFETY SWITCH WITH DUO-STRENGTH OPERATING HOOKS ADDS NEW SAFETY TO SAFETY SWITCH PERFORMANCE

This is the finest, most modern safety switch . . . the Cutler-Hammer 4105 Heavy Duty Type A Safety Switch. The 4105 combines the famous Cutler-Hammer "heat proof dependability" with a super-strength construction for safer, positive switch performance. Mill electricians, engineers and contractors recommend and install the Cutler-Hammer 4105 Safety Switch, and here's why.

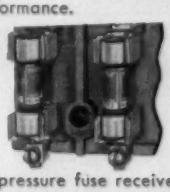
The duo-strength operating hook and hook insulator insure the dependable performance so vital to reliable safety switch operation. The high-strength steel hooks provide an all-steel linkage between the contact blades and operating handle that will faithfully open and close the contacts even after years of continuous service. The Alkide hook insulator and operating rod insulating sleeve provide double insulation for double-sure safety.

Other important features of design include automatic pressure fuse receivers; no screws to tighten . . . fuses can't work loose or be left loose while in service. Visible contact blades that instantly indicate the circuit condition. The 4105 panel mounted mechanism is readily interchangeable with that of the 4101 design for rapid replacement without case-and-conduit work.

For full information see your Authorized Cutler-Hammer Distributor or write on your company letterhead for Cutler-Hammer Motor Control for Textile Machines, Pub. EL-115. CUTLER-HAMMER, Inc., 1457 St. Paul Avenue, Milwaukee 1, Wisconsin.

CUTLER-HAMMER
SAFETY SWITCHES
C-H

High strength glass fibre Alkide hook insulator and sleeve type operating rod insulator form the finest electrical safety. Hook is of high-strength steel for long-lasting switch performance.

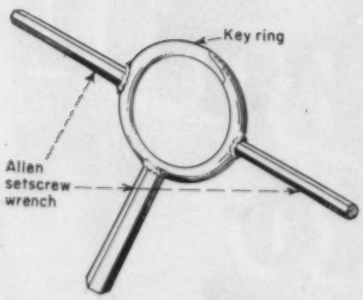


Automatic pressure fuse receivers maintain uniform clip-to-fuse contact. Fuses won't work loose . . . no tools required to install fuses.

Sub-base panel mounting simplifies maintenance . . . quick, sure, economical. New 4105 mechanism will fit 4101 style case; no new case or conduit work.

Available in sizes from 30 amperes to 1200 amperes; 2, 3, and 4 poles; fusible and non-fusible.

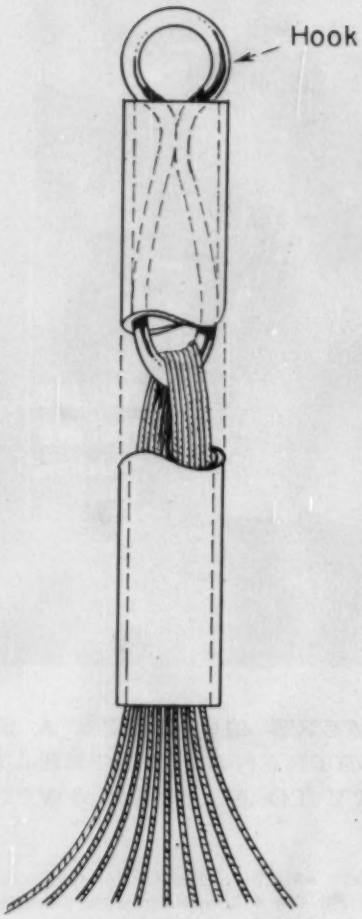
For more data, write this page number on Reader-Service card. →



Weld Setscrew Wrenches To a Key Ring for Easy Use

A loomfixer needs several sizes of Allen setscrew wrenches on his job. Also, mechanics and others use these wrenches constantly. The wrenches are small, and sometimes it is hard to find the correct size when needed.

A simple way to have a variety of these wrenches instantly available is to weld them to an ordinary key ring. The ring not only provides an easy method of carrying the wrenches but also serves as a handle when the wrenches are used. (K-3162) *H. E. Wenrich, Berwick, Pa.*

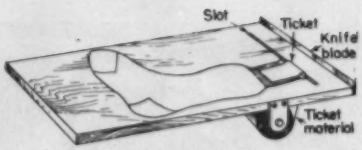


Improve Jacquard Harness With a Plastic Hose

A plastic hose placed over the top part of the harness tie and hook will eliminate the usual bulky knot or tie-up of jacquard cord.

The hose-and-hook method, as illustrated, gives free movement to all the cords with a minimum of friction and assures longer life for the harness.

The loop of the cords should be soaked in linseed oil and pulled through the hose with a wire. The hook is then attached to the loop and pulled down into the plastic hose. (K-3319) *J. R. Rönhoyde, Bergen, Norway*



Put Tickets on Socks Faster

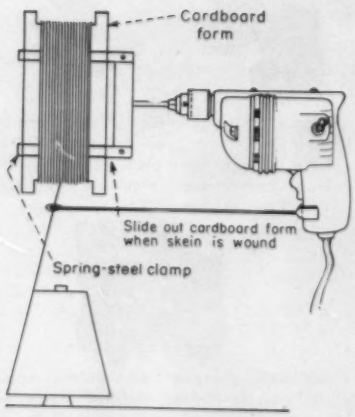
Putting tickets on socks is a tedious, slow job. Here's how to reduce the time required to 2 secs.

The sock is placed on a board with the top facing the operator. The tickets are in roll form, and the roll is suspended on a bracket below the board. The board can be fastened to a table or bench.

Make a slot in the board, and bring the ticket material through the slot. Attach a sharp knife blade to the edge of the board.

To place a ticket over the end of a sock, lay the sock on the board with the top facing the operator. Pull the ticket material over the top of the sock, and pull the sock forward against the knife edge to cut the ticket.

The ticket material used is the non-wet stick type printed in roll form. (K-3296) *H. J. Haas, Martinsburg, W. Va.*

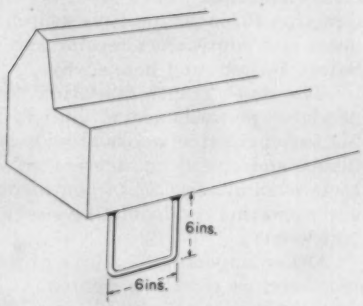


Make Sample Skeins With Portable Skein Winder

A special clamp that can be attached to a small electric drill makes a useful skein winder. Uniform sample skeins can be produced with this portable unit anywhere in the mill, saving trips to the laboratory and eliminating the variations in regular skeins that might be cut for samples. (K-3298) *H. J. Haas, Martinsburg, W. Va.*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

Send in your Kink now.



Step on Spooler Trough Eases Operator's Job

Operators have to step up on spooler troughs on Barber-Colman automatic spoolers to change feelers and make other adjustments. This is a pretty high step for an elderly person or one partially disabled by arthritis or hernia.

Strain on operators can be greatly eased by welding a step or stirrup to the bottom of the trough at each end and in the middle. Use ½-in. steel rod. (K-3075)

SPECIFY "ORANGE LINE" for better loom performance

Graton & Knight textile leathers are the result of over a century of practical mill experience. For every textile machine requiring leather accessories, G & K has pioneered and proven a better tannage . . . a better product.

G & K "Orange Line" loom leathers, tapes and Grakorub aprons are used in leading textile mills everywhere.

Ask your local distributor to tell you about G & K performance, or write:

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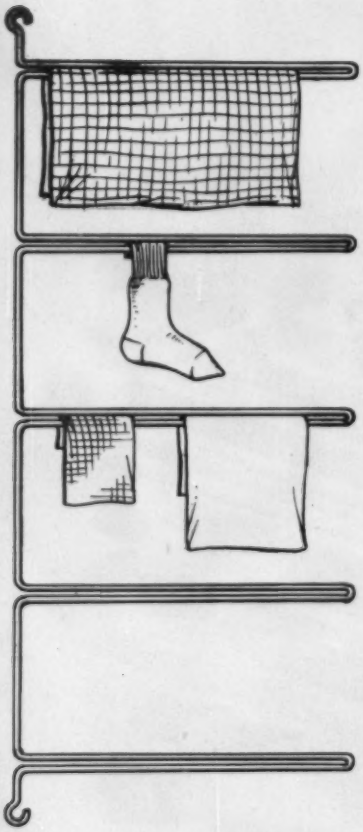


Make a Sample Holder From a Piece of Wire

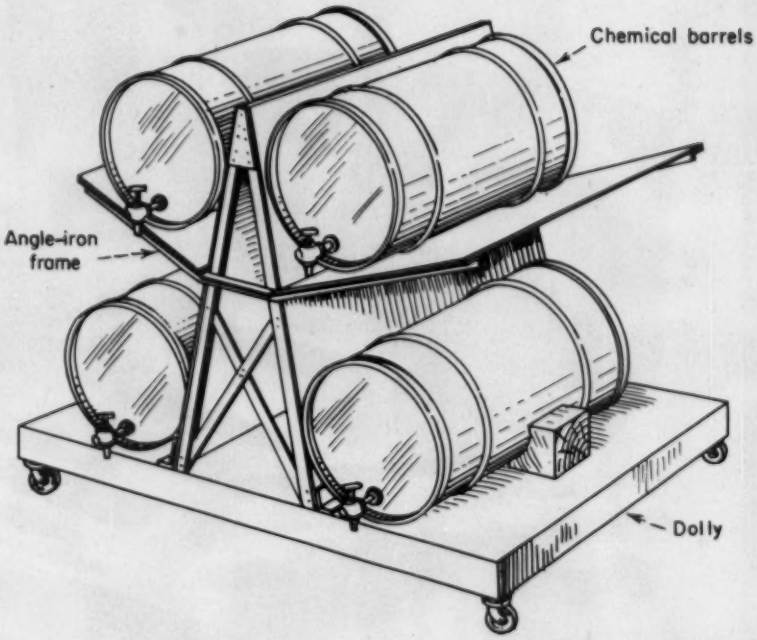
A rack for fabric samples or socks can be made easily by bending a piece of wire to form a rack. Fasten the rack to a wall or bench with two screws; it takes up little space.

Bend the wire to the shape shown in the sketch, and use as many holders as you require. To display the sample, simply push the sample between the bent parts of wire. No pins or tacks are required. (K-3297) *H. J. Haas, Martinsburg, W. Va.*

Yarn Cone Makes A Good Oil Funnel

The oil can that is used for knitting, winding, and other textile machines is generally filled from a drum or a larger can. In filling the can, there is often as much oil wasted as goes in the can.

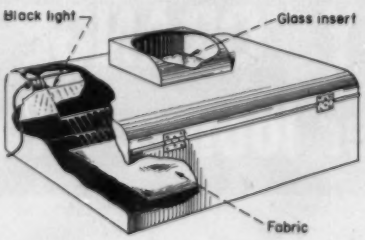
To prevent this waste of oil, snip the top end off an empty yarn cone and use the cone as a funnel. Make the hole in the top to fit the oil can. (K-3257)



Dolly Brings Chemicals to Dyeing Machines

Chemicals that are used constantly in dyeing operations can be moved to the machines very easily on this multi-drum dolly.

By keeping four of the most-used chemicals on one dolly, floor space is economized and the materials are close at hand when needed. (K-3308)

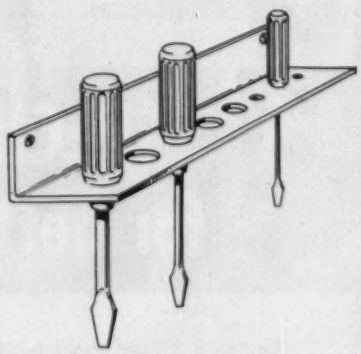


Portable Dark Room Cuts Laboratory Work

Black light used to detect oil spots, uneven scouring, and other faults requires a darkened area for good results.

To avoid darkening a room or a portion of a room, we made a small cabinet with a hinged lid that has a glass insert. The black light is mounted in the cabinet and the cabinet walls are painted black.

We view the sample through the glass insert and get excellent results without bothering the laboratory. (K-3178)



Neat Screw-Driver Rack Is Made of Angle Iron

For the mechanic who likes his tools in the open for quick selection, the screw-driver rack shown in the sketch is ideal.

Take a piece of angle iron and drill three holes for screwing it to the workbench or wall. Then drill in the other angle as many holes as you need to accommodate the screw drivers.

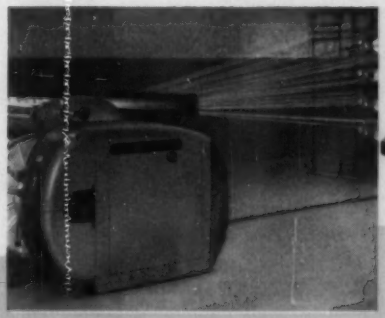
The holes in the back of the rack should be countersunk; and for a neater job, the rack can be painted. (K-3160) *H. E. Wenrich, Berwick, Pa.*

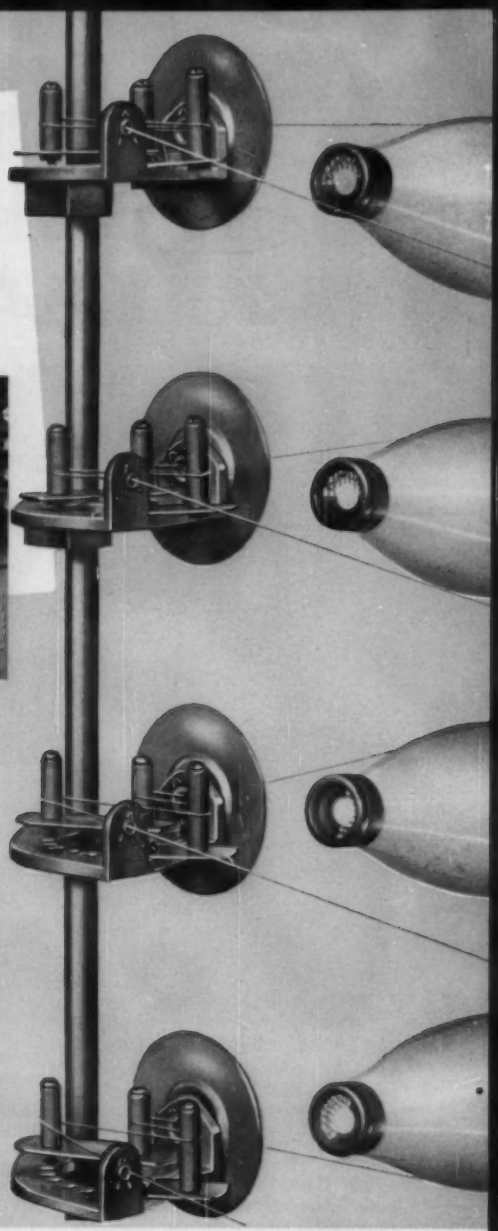
ALSIMAG® GUIDES

are standard equipment on

COCKER'S

New High Speed Beam Warper and Creel





Tire cords and weaving yarns are processed at speeds up to 1,000 yards a minute on the new, multi-purpose SD-49 Cocker Warper. Especially designed to handle large section beams. Used with Magazine Package Creel.

Hard, homogenous AlSiMag eyelets and tension posts do an outstanding job in beamer, eyeboard and creel arms. **Give exceptionally long life,** even in processing the most abrasive yarns. **Assist in control of static** when properly grounded. **Reduce yarn damage,** since there is no point of sudden failure.

Scores of carefully documented case histories in our files prove that AlSiMag Guides are lowest in cost per pound of processed yarn . . . particularly in exacting applications, at high speeds, where abrasion is a problem. **They save money, trouble and downtime** . . . sound reasons why almost every leading U. S. textile machinery manufacturer specifies AlSiMag Guides as standard equipment.

Why not try AlSiMag Guides in your own operation? Ask for free test samples . . . or custom made parts for trial at nominal cost.

● COCKER MACHINE & FOUNDRY CO., Gastonia, North Carolina, carries these AlSiMag 193 guides in stock for immediate shipment. The same guides may be ordered direct from American Lava Corp. for shipment after normal production interval.

AlSiMag No. GE-25358-A

AlSiMag No. GU-18462-A

AlSiMag No. GE-18398

AlSiMag No. GE-22048

AlSiMag No. GE-17204

AlSiMag No. GE-22785

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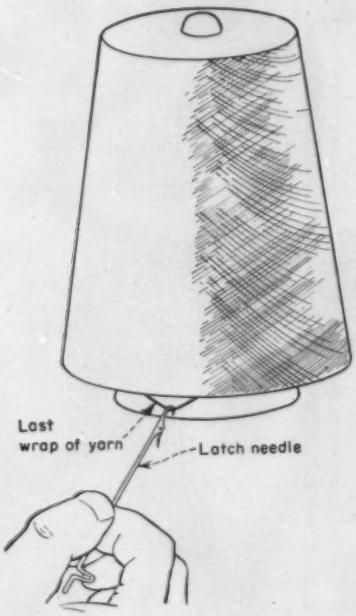


We Make Our Own Pigtails

Sometimes we receive a cone of yarn without a pigtail, or the pigtail gets torn off. We overcome this difficulty by making our own pigtails. Here's how to do it:

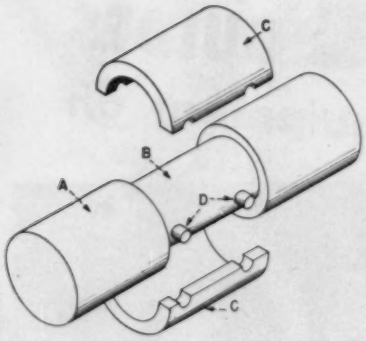
Carefully pull out a thread from the bottom row of yarn on the cone. Use the hook of a latch needle for this job, and use it as close to the paper cone as possible.

Break the loop that forms on the extreme left if the cone of yarn unwinds from the right to left. If the cone unwinds in the opposite direction, break the yarn on the extreme right. (K-3126) *L. Prelog, Sydney, Australia*

Raise Chair Legs For Easier Working

Many of the operators in our mill sit down to do their work. Our work tables are of different heights; and we've found that if the operator sits too high or too low, her efficiency is decreased.

Chair legs are sawed off to lower the sitting level, or chairs are raised by 1-in. metal pipes slipped over the legs. We keep several lengths of pipe, and they are changed until we find the most efficient height for working. (K-3255)



Here's How To Repair A Shaft in an Emergency

A loose pulley on a shaft was causing trouble, and when the machine was dismantled it was found that the shaft was badly worn due to lack of lubrication. The shaft diameter could have been built up by gas welding or metal spraying and then machined to size; but as the repair had to be carried out in a hurry and none of these aids were available, the following procedure was adopted.

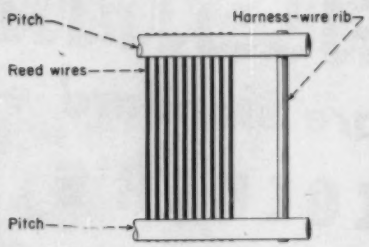
Shaft *A* was mounted in the lathe, and the scored surface was machined away so that a neck *B* with shoulders at either end was produced. The pulley bore was then cleaned by boring. Bushing *C* was turned and the bore was made to fit close to the turned neck diameter. The outside diameter has a running fit in the pulley bore.

The bushing was split lengthwise with a hack saw, and the two halves were slipped on the neck with the pulley on the bushing exterior.

To be sure that the split bushing does not cause further wear on the shaft, it is prevented from turning by inserting four pins *D* into shallow-drilled holes in the shaft. The pins engage the semicircular grooves in the split edges of the bushing. The pin holes were drilled before splitting the bushing. (K-3113) *Clifford T. Bower, London, England.*

$5 to $10 for any Kink accepted for publication. Each one will be entered in the $25 and $500 prizewinner contest.

Send in your Kink now.

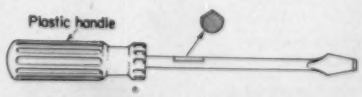


Harness-Wire Rib Protects Loom Reed

We make cotton roller padding with very little warp, heavy filling, and no selvage in the eight-leaf satin weave. A catch is used to weave a fringe border. The reed wires used to become bent and broken at each end and give a lot of trouble.

The problem was solved by removing some of the regular reed wires from the edge of the cloth for a distance equal to the length of the fringe. Small holes were drilled through the pitch at the top and bottom of the reed, and a piece of heavy harness wire was inserted.

If a reed is reinforced in this manner, care must be taken to keep the harness wire from protruding beyond the reed wire and damaging the shuttle. (K-3149) *Chas. S. Bicksler. Lancaster, Pa.*



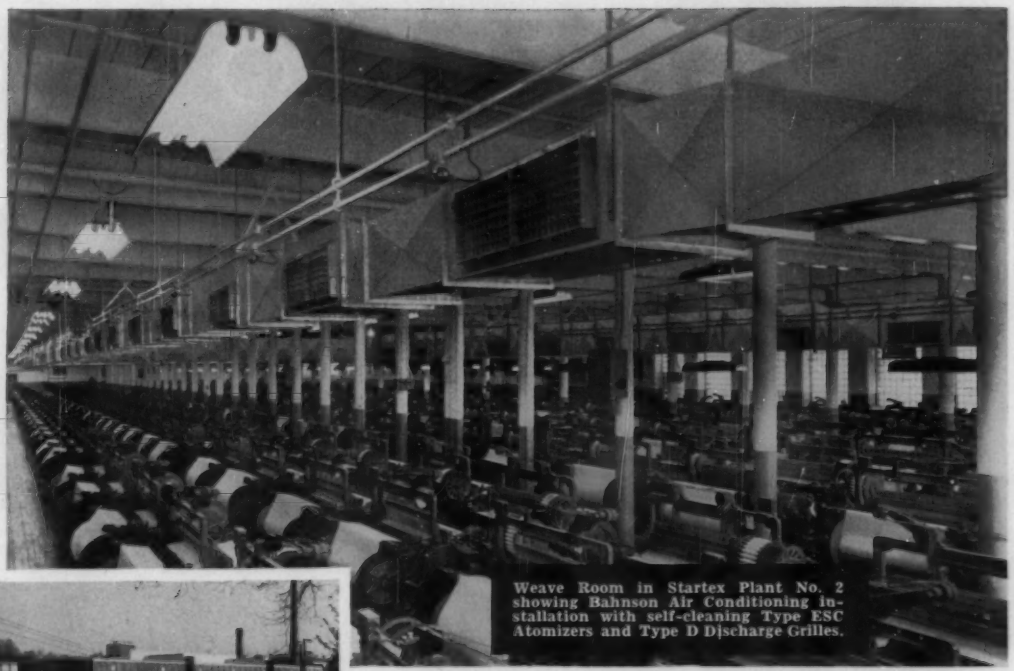
Give Screw-Driver Blade A Wire-Stripping Surface

An electrician often has to open a knife to strip insulation from wire to make connections. Sometimes, he is on top of a ladder or in some other insecure position, which creates a safety hazard.

An edge sharpened on the blade of a screw-driver can be used to strip insulation. This surface will not cut the hand. The stripper is instantly available, and it saves the electrician's pocket knife. (K-3275) *H. L. Crocker, Clinton, S. C.*

BAHNSON CENTRAL STATION AIR CONDITIONING

with capacity for more than a million cubic feet of air every minute installed at STARTEX® Mills



Weave Room in Startex Plant No. 2 showing Bahnson Air Conditioning installation with self-cleaning Type ESC Atomizers and Type D Discharge Grilles.

Exterior view of Startex plants at Startex, S. C.

"To air condition the plants of Startex Mills, Division of Spartan Mills, Spartanburg, S. C., our engineers designed a Central Station System with refrigeration and high quality components, built for long life and dependable service. Careful attention was given to Startex's requirements in each plant, in each room. Features such as Bahnson axial-flow fans and functional apparatus towers housing Bahnson air washers with stainless steel hinged eliminators help provide top performance and operating efficiency.

The Bahnson Company has the experience, know-how, and complete facilities to assist you with your air conditioning needs. Write me directly at the Bahnson Co., Dept. R, for full information. Ask for Bulletin 22A."

Agnew Bahnson Jr.
President
The Bahnson Company

91 of the top 100

Of the nation's top 100 textile mills 91 are users of Bahnson equipment

Bahnson COMPANY
WINSTON-SALEM, N. C.

AIR CONDITIONING
HUMIDIFICATION
VACUUM COLLECTION
CLEANING
CREELS

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You get good fibre lay and a tough, smooth size film with . . .

GLOBE® PEARL STARCHES

Operator notes more uniform film applied by Globe Pearl Starch.

Globe Starches are clean and uniform. You can depend on them to produce a high grade warp.

The viscosity of Globe thick boiling starches stays constant during continuous pumping and circulation, giving maximum warp strength and weavability.

Globe brand starches are particularly indicated on heavy goods. Shedding can be minimized and chafing practically eliminated by the tough size film you get with Globe. Also, there are special Globe Starches for use in homogenizers, which give excellent results.

Ask the man from Corn Products. Ready to assist you in any way, he has at his disposal the most complete laboratory and technical facilities in the industry. The man from Corn Products can also provide engineering service for the installation of bulk-handling equipment. Write or phone for information, there is no obligation.

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Louden Monorail
cuts the cost of
Interplant Transport

As companies grow and expand production facilities, the problem of interplant transport of materials, parts or semi-finished products is often encountered. Time and again Louden Monorail proves to be the perfect answer. With Louden's Selectomatic Control, such an interplant transport system can be virtually *automatic.*

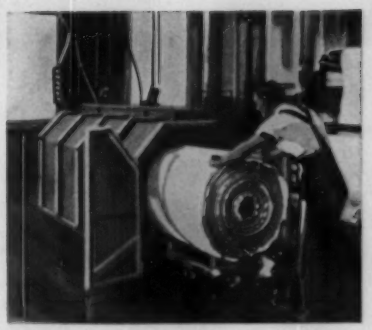
The Louden Selectomatic Interplant Transport System at the Marion, North Carolina, plants of the Clinchfield Manufacturing Company is a good example. Here the problem developed of transporting tons of cloth daily between three separate buildings. 650 feet of Louden Monorail with a weather proof car in almost continuous operation provides the perfect answer. The car can be raised and lowered as required for charging and discharging loads; the destination desired is preset by the control; transport is speedy, trouble-free, automatic. It is estimated three men with trucks would have difficulty doing the same job.

Louden Selectomatic Interplant Transport Systems can do many things not required in the Clinchfield installation described. It can automatically transport materials unattended from point to point anywhere in or about your plant, and it can select the shortest and most direct route to its destination. It can travel from floor to floor and building to building, open doors to let itself through and close doors behind it . . . building doors, floor doors, oven doors. It places loads in ovens or in banks of infra-red dryer lamps, turning the heat on and off as needed. It stops promptly when there is a load ahead or when it does not have the right of way, and resumes travel when the way is clear. It stops accurately at its destination and even loads and unloads its own carriers with certain classes of materials. It returns empty carriers to point of origin or places itself in storage awaiting its next call.

Louden Automatic Materials Handling is the guaranteed product of the pioneers and oldest company in the field of specialized monorail handling. Both the Louden field representatives and the factory engineers are highly trained specialists in the field of overhead materials handling. When you have a materials handling problem or any plant problem involving lifting and transporting loads, call on Louden for suggestions. This will cost you nothing but may prove to be the most profitable move you have ever made.

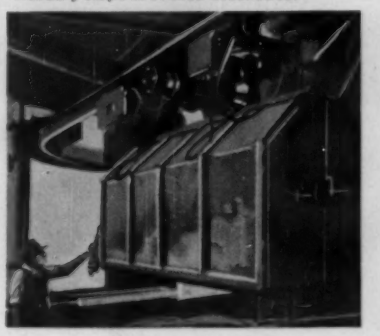
THE LOUDEN MACHINERY COMPANY

5703 Court St., Fairfield, Iowa
A Subsidiary of Mechanical Handling Systems Inc.

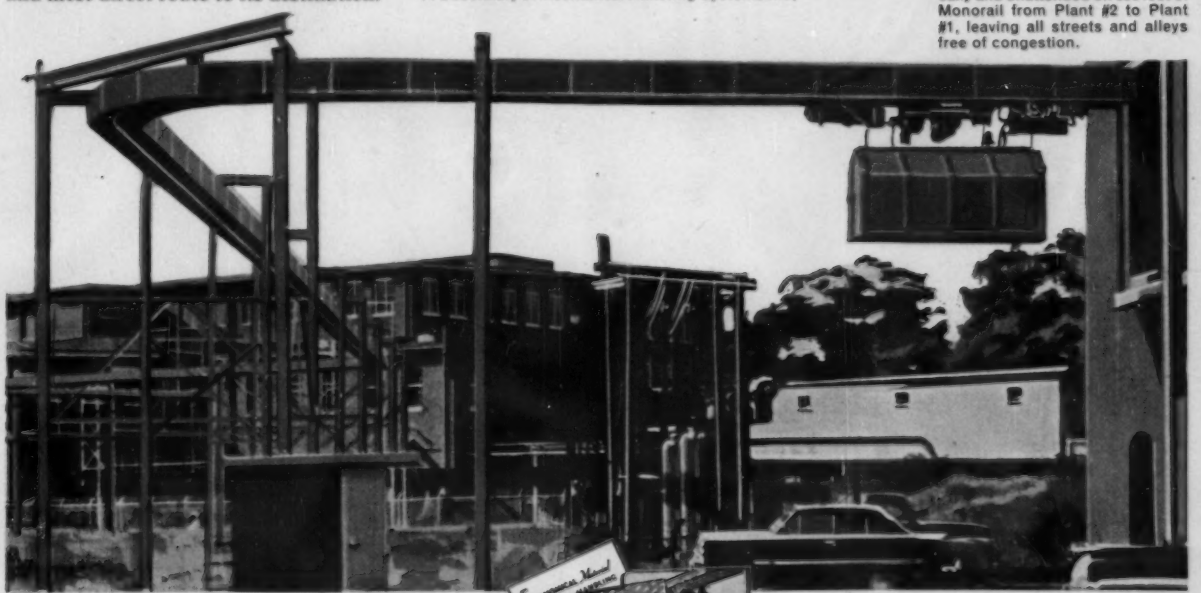


Operator loading carrier with two 650 pound beams of domestic print cloth prior to transport from loom room to cloth room.

Below:
Operator raising carrier into position, selecting destination by push button. Carrier automatically stops at desired destination.



Below:
Carrier completing trip automatically and unattended on 650 feet of Monorail from Plant #2 to Plant #1, leaving all streets and alleys free of congestion.



Get the latest information on the best in modern materials handling systems. Write today for your copy of "Economical Material Handling", a 52 page book full of how-to-do-it ideas. If you are interested in automation, ask for the new book on Louden Automatic Dispatch, "Automatic Materials Handling". With either you will receive the latest information on Louden Shok-Pruf Electrification, new safety in power for cranes and monorail systems.

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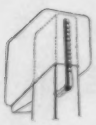

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TEXTILE WORLD, A McGraw-Hill Publication, New York 36, N. Y. March, 1957

Outstanding NEW LITERATURE
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NO REPEATS . . . Listed here for March are current bulletins reviewed by the editors of TEXTILE WORLD. To get the ones you need, circle the number on the Reader-Service card, as described on the preceding page.

TEXTILE MACHINERY

Comber—For cotton, 12 heads; available for 12-, 14-, and 15-in. cans. Model 56 described in booklet from Saco-Lowell Shops. (F-1)

Raschel loom—Patterns produced by chain drum. Working width 121 ins.; in 12 and 18 gauge, producing up to 250 rows per min. Type KR 55. Wilhelm Barfuss GmbH. (F-2)

Circular knitting machines—Folder describes 13 types for production of various kinds of plain and jacquard inner and outerwear fabrics. Mellor Bromley & Co. Ltd. (F-3)

Flock printing machine—Self-contained unit prints patterns, deposits flock electrostatically; removes excess flock and dries adhesive in a compact machine. Fritz Hofer (F-4)

Roller-bearing spindles—Designed to fit most spinning frames without modification. Low friction cuts power requirements. Stellite American Corp. (F-5)

Plate singer—For tropicals and blends. Gas-fired, variable-speed unit with automatic cloth-lifting mechanism and ash brushes. Birch Brothers, Inc. (F-6)

Fleece-fabric machine—Circular knitting machine, 36 to 48 feeds, 18- to 26-in.-dia. models produce a variety of outerwear. Supreme Knitting Machine Co. (F-7)

Stretch-yarn machine — Produces bulked synthetic yarns in one operation. Can be fitted to regular twisters or supplied as a complete machine. Sydney & E. Scragg, Oxford Rd. Works. (F-8)

Drafting system—For drafts up to 50, complete units produce uniform yarn. Bouligny Co. Div. of R. H. Bouligny, Inc. (F-9)

Pile-fabric machines—Circular knitting machines produce plain and patterned multiple-loop fabrics with jersey back. Supreme Knitting Machine Co., Inc. (F-10)

AUXILIARY EQUIPMENT

Crimp-twisting machine — One-step bulked-yarn producer, 140 spindles, 20 to 120 tpi., automatic heat control. Ernest Scragg & Sons Ltd. (F-11)

Boarding machine—For pre- and post-boarding operations on nylon hose. 200 to 220 doz. pairs per 8 hrs., 60 boards per unit. Bellfour GmbH. (F-12)

Scrubber brushes—For Darex blanket washers. Metal cores, nylon bristles. N. W. Jenkins' Sons, Inc. (F-13)

Magnifiers—Illuminated magnifiers for all types of inspection work, pick counting. Various models, 5 to 20 power. E. W. Pike Co., Inc. (F-14)

Stirrers and mixers—Laboratory equip-

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ment operated by air, electricity, or magnetism in a variety of types. Booklet FS-264. Fisher Scientific. (F-15)

Moisture control—For slashers, tenters. Provides control of moisture within predetermined limits. Models for general and specific purposes in textile drying. Strandberg Engineering Laboratories, Inc. (F-16)

Heat-removal system—For spinning rooms. Collects heat from frames and motors, maintains lower over-all temperatures. Bahnson Co. (F-17)

Loom cleaner—Large radial-flow fans blast lint from looms while moving on overhead track. Bulletin C-2. Bahnson Co. (F-18)

Roll sheet cutter—For cutting textiles and plastics laterally or longitudinally. Complete series of machines for converting roll stock into small units. Charles Beck Machine Co. (F-19)

Tensiometer—For checking variations in tension in yarn from different beams. Applicable to the slashing operation. Kidde Mfg. Co., Inc. (F-20)

SUPPLIES & CHEMICALS

Hydrosulfite—Dustless form in controlled particle size for color stripping, discharge work. Data on application. Royce Chemical Co. (F-21)

Guar gum—Complete details of properties and many uses listed in 16-page booklet from Stein, Hall & Co., Jaguar Dept. (F-22)

Industrial chemicals—Over 200 chemicals and intermediates listed in a products bulletin from Aceto Chemical Co., Inc. (F-23)

Silicone lubricants—Greases and fluids for many uses described in folder No. 6-101 from Dow Corning Corp. (F-24)

Tetrapotassium pyrophosphate—Data and suggested applications in Bulletin 5052R from Food Machinery & Chemical Corp., Westvaco Mineral Products Div. (F-25)

Organic chemicals—Over 335 organic chemicals described and condensed data on properties and applications listed in booklet F-6136 from Union Carbide International Co., Div. of Union Carbide & Carbon Co. (F-26)

Oxidation methods—The uses of hydrogen peroxide, sodium perborate, and ammonium persulfate in dye oxidation on cellulosic and synthetic textiles is well covered in Bulletin 75 from Becco Chemical Div., Food Machinery & Chemical Corp. (F-27)

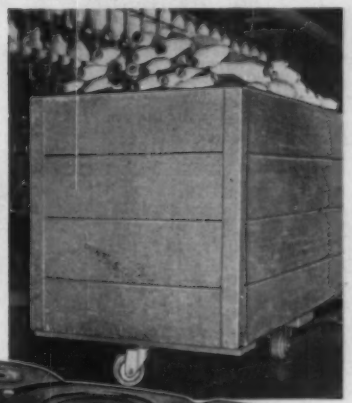
Acrylic monomer—Dimethylaminoethyl

Faultless CASTER MATERIALS HANDLING FACTS

INCREASING TEXTILE PRODUCTION AND DECREASING COSTS AT RUSSELL MANUFACTURING CO., ALEXANDER CITY, ALA.

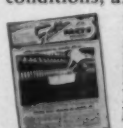
Advanced engineering methods of servicing over 64,000 spindles at the mills of Russell Mfg. Company have helped them to be recognized as one of the South's most enterprising textile mills. The continuous productive operation of textile machinery depends to a large extent upon keeping the equipment supplied with work materials. Keeping work material on hand and feeding it into the spinning machinery speedily is accomplished at Russell Mills with a combination of integrated trucks. And to assure these trucks a trouble-free, continuous cycle through every phase of mill operation, the Russell executives selected Faultless 504-4TG rigid plate and 1104-4TG Double Ball Bearing Swivel Casters with drawn steel wheels.

1100 Series Swivel Caster shown with Drawn Steel Wheel. Note two full rows of hardened ball bearings in swivel head and in wheel hub.



Faultless castered equipment can lead the way to reduced costs and increased production in *your own plant.* Casters for light, medium, heavy and special duties are included in the extensive Faultless line. Faultless wheels for every type floor and load, as well as for special temperature and chemical conditions, are available.

500 Series with Plaskite Wheel and Thread Guard to keep lint out of bearings, string from winding around axle.



Each month the solution to a real materials handling problem is fully presented in a free, handy size folder "Faultless Facts." Ask your local Faultless Distributor for copies or write to us, no obligation.

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THANK YOU... Dan River Mills!

We are glad that Mount Hope "Free-Wheeling" Expanders have proven satisfactory!

DAN RIVER MILLS
INCORPORATED
DANVILLE, VIRGINIA

December 30, 1955

Mr. S. A. Moffitt
Textile Consultant
Mount Hope Machinery Company
15 Fifth Street
Taunton, Mass.

Dear Sam:

Thank you for your nice letter of December 22nd, inquiring about our experience with Mount Hope equipment.

We have a number of various pieces of equipment with which we have had experience. This includes ten sets of mechanical cloth guiders through which wet cloth passes at the entrance of machines. These are used [illegible] in front of dry cans, and they are in almost continuous operation.

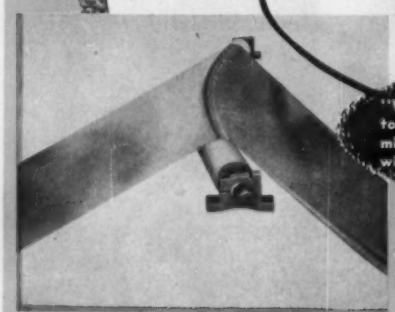
In addition, we use approximately 100 Mount Hope Free Wheeling Expanders, and we have found them completely competitive with any other product with which we have had experience. Also in use is one overhead reel, which opens the cloth through mechanical guiders to open width as the cloth is being removed from rope washers. In addition, at our Riverside Division we use several automatic turntables, reels, openers, guiders and Plaiters.

We have found Mount Hope equipment to be very satisfactory, requiring the minimum of repair, and we are pleased with its performance.

With kind personal regards and every good wish that the New Year will hold for you and yours an abundance of the good things of life, I am

"... and use approximately 100 Mount Hope Expanders."

"We have found Mount Hope Equipment to be very satisfactory, requiring the minimum of repair and we are pleased with its performance."



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methacrylate is thoroughly covered as regards properties, uses, and principal reactions in literature from Rohm & Haas Co. (F-28)

MAINTENANCE & ENGINEERING

Chlorine evaporator—Produces dry chlorine gas from liquid chlorine supply automatically at rate of 6,000 lbs. per 24 hrs. Fisher & Porter Co. (F-29)

Grinding and mixing equipment—Ball mills in laboratory- and plant-scale sizes described. Mixing and drum-painting equipment listed in Bulletin 280. U. S. Stoneware, Process Equipment Div. (F-30)

Flexible couplings—Open and enclosed chain-type couplings for power transmission. Bulletin CPI-56. Acme Chain Corp. (F-31)

Automatic fire checks—Detect, localize, and extinguish flashbacks in fuel-gas supply lines. Bulletin SC-1006. Selas Corp. of America. (F-32)

Temperature regulators—Vapor-pressure operated, available in wide series of temperature ranges and up to 4 ins. in size. Bulletin TR-57. Atlas Valve Co. (F-33)

Remote controls—Vary speed, flow, tension, proportions in many industrial applications. Manual or automatic operation. Bulletin J-100. The Jordan Co., Inc. (F-34)

Surface pyrometers—Check temperatures on flat, curved, stationary, or moving surfaces. Laboratory and plant models, several ranges. Illinois Testing Laboratories, Inc. (F-35)

Weldless-repair kit—For repairing iron and steel. Methods and materials described in Bulletin 14 from Smooth-on Mfg. Co. (F-36)

Power lubrication—For industrial machinery, prime movers. Manual, mechanical, and electrical systems described in Catalog 811 from Lincoln Engineering Co. (F-37)

Ball bearings—Many types described in 64-page catalog that also gives much engineering data. Barden Corp. (F-38)

Gasket thermocouples—Small types particularly suited to checking temperatures in lines carrying fluids. Copper or stainless steel, three temperature ranges. Bulletin from Thermo Electric Co., Inc. (F-39)

Control valves—Air-actuated valves in several types, from 1- to 4-in. sizes. Bulletin LB-2. Conoflow Corp. (F-40)

GENERAL

Floor trucks—For light and medium duty, loads to 1,500 lbs. Wood and

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NEW LITERATURE Continued

metal construction, solid and pneumatic wheels. Bulletin 202-A. Orangeville Mfg. Co. (F-41)

Pallet-unloading system — Removes units from pallets automatically to off-bearing conveyor lines. Bulletin F-225. Alvey Conveyor Mfg. Co. (F-42)

Heavy-duty package—Corrugated-paper containers built to specifications. Two types available, averaging 900 and 1100 puncture test. Folder from Tri-Wall Containers, Inc. (F-43)

Chromatographic analyzer—Continuous-flow paper-electrophoresis instrument handles up to six samples, gives continuous analysis for 72 hrs. Bulletin SBCP-1. Spinco Div., Beckman Instruments, Inc. (F-44)

Floor repairs—Made on concrete floors, carry 50,000-lb. loads immediately after application. Bulletin from Monroe Co., Inc. (F-45)

Overhead conveyors—For moving materials, positioning machines for repair. Booklet 2008. Cleveland Tramrail Div., Cleveland Crane & Engineering Co. (F-46)

Materials handling—Stackers, telescoping elevators, manual and powered lift trucks and cranes described in Cat. 56. Allied Mfg. & Sales Co., Materials Handling Div., Grand Specialties Co. (F-47)

Chain hoists—Hand-powered models, ½- to 6-ton capacities, 8- to 12-ft. lift. Bulletin H-42. Harnischfeger Corp. (F-48)

Fluorescent lighting—Built-in reflectors increase efficiency of lighting. Various sizes and applications described in Folder DR656 from Sylvania Electric Products, Inc. (F-49)

Gear motors—For right-angle applications, furnished in 1 to 30 hp., various output speeds. Westinghouse Electric Corp., Gearing Div. (F-50)

Textile World

BOOK REVIEWS

GROWING COTTON, by V. R. Cardozier; McGraw-Hill Book Co., 330 W. 42nd St., New York, N. Y.; 423 pages, $5.80.

This volume covers its subject thoroughly, from the first decision of the farmer to grow cotton to finding the best market for his product.

Each step of the business of growing cotton is outlined; and the reasons for the suggested procedures are well backed by Dr. Cordozier's extensive experience in the field as well as by

the results of researches conducted by Federal and State agricultural experiment stations.

An appendix carries much useful information regarding cotton production, consumption, grading, growing costs, and testing.

FBI REGISTER OF BRITISH MANUFACTURERS, published for the Federation of British Industries by Kelly's Directories Ltd. and Iliffe & Sons Ltd., Dorset House, Stamford St., London S. E. 1, England; 1957 edition; 1,124 pages, cloth, 40 shillings postpaid.

A compilation of all of Britain's manufacturers, her principal trade associations, and a classified buyers guide are supplemented with information on trade marks and proprietary names. A glossary in French, German, and Spanish helps those not familiar with British trade terms.

J. K. LASSER'S STANDARD HANDBOOK OF BUSINESS TAX TECHNIQUES, prepared by J. K. Lasser Tax Institute; McGraw-Hill Book Co.; 568 pages, $14.

This volume helps the business man wend his way through the multitude of tax regulations that now bear on every phase of business management.

The right course of action is charted for the business man by means of descriptive material and examples of the common tax problems that confront him. What to do about business losses; how tax laws apply to dividends, rents, and royalties; what he may deduct as business costs; how property sales are taxed; and how life insurance can be used to protect his business are some of the subjects covered.

A supplemental service entitled *The Lasser Business Tax Techniques Letter* is available to purchasers of the handbook on a subscription basis.

ELECTRICAL HANDBOOK FOR TEXTILE DRIVES, by J. C. Marous; Westinghouse Electric Corp., E. Pittsburgh, Pa.; 138 pages, $4.

This handbook discusses each step of textile manufacture from the standpoint of the equipment necessary to drive the machines. A description of each process is accompanied by a machine drawing and typical circuits.

Excellent theoretical data on d.c. and a.c. currents and d.c. and a.c. motors are presented to aid the mill electrician with installation and maintenance work.

CONTINUED ON PAGE 216

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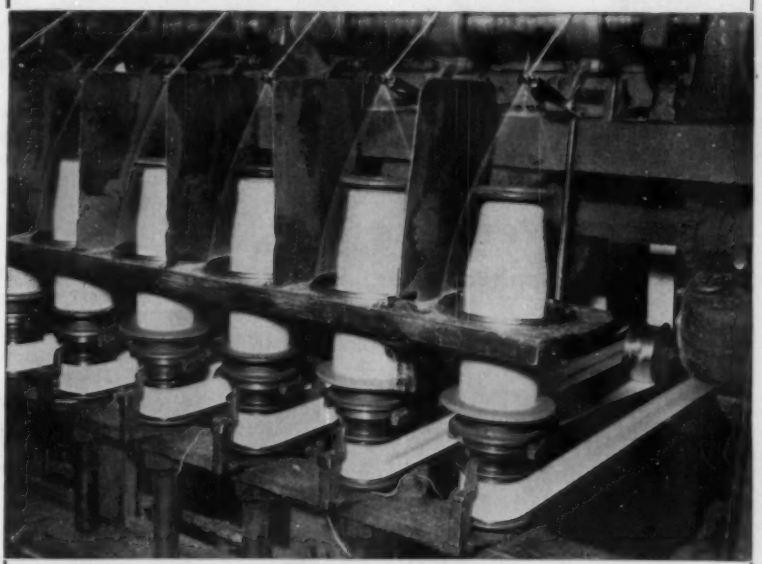
SUPR-O-BAND



SUPR-O-BAND, the new banding for spindle drives on spinning, twisting, and roving frames. Promises to be as successful as SUPR-O-TAPE that revolutionized woolen condensing "over night."

ALREADY PROVED by more than a year of rugged mill tests. Note these plus features:

- IMPROVED QUALITY
- LOWER POWER CONSUMPTION
- INCREASED PRODUCTION
- MORE ECONOMICAL

BECAUSE . . . SUPR-O-BANDS Give:

- OPTIMUM SPINDLE SPEED
- LONG LIFE
- UNIFORM TWIST
- MAXIMUM FRICTION—NO SLIPPAGE
- LOWEST COST

SUPR-O-BANDS are lint-free; use belt-hooks or stitching.

- STRIP-O-MATIC CARD CLOTHING
- CONVENTIONAL CARD CLOTHING
- SUPR-O-TAPE FOR CONDENSERS

BENJAMIN BOOTH COMPANY

Booth

ALLEGHENY & JANNEY STS., PHILA. 34, PA.

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in every case...

stepped up drive efficiency less maintenance

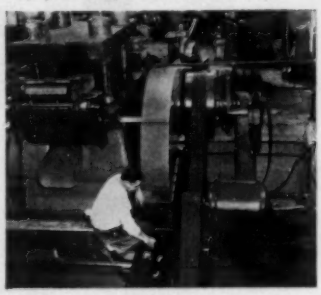
with Wood's complete drives

Matchability of WOOD's "Sure-Grip" V-Belts and Sheaves assures a balanced drive performance. When the "tailored to the groove" V-belts seat themselves in the smooth, uniform sheave grooves they give higher operating efficiency, smoothness at all belt speeds, greater load capacity, ability to absorb shock and pulsating loads, minimum maintenance and lowest power consumption.

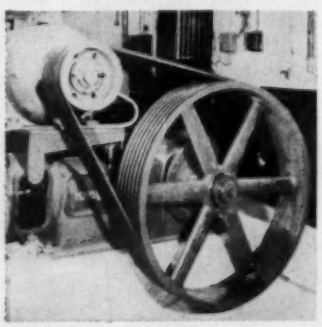
Whether your power transmission problems involve design, installation, maintenance or availability, don't hesitate to call in your WOOD's Industrial Distributor . . . he's a good man to have around because he has been successfully solving just such problems for years, on many different applications . . . he'll offer efficient, economical, practical ideas . . . give you the best in power transmission equipment, expertly designed and manufactured for your particular requirements.

Write us for Bulletin #199 . . . and/or the name of your nearest WOOD's Distributor.

TEXTILE DRIVE—"Maintenance, take-up practically eliminated" . . .



AUTOMATIC PRESS DRIVE—"Maintenance-free performance" . . .



COMPRESSOR DRIVE—"Long service, less downtime" . . .

Wood's **T. B. WOOD'S SONS CO.**

CHAMBERSBURG, PA.

CAMBRIDGE, MASS. • NEWARK, N. J. • DALLAS, TEXAS • CLEVELAND, O.

PROCESS METALLIC YARNS

CONTINUED FROM PAGE 118

should be avoided under similar conditions.

In dry cleaning, Stoddard's solvent, carbon tetrachloride, and perchlorethylene are safe to use on Lurex. Acetone and trichlorethylene should be avoided.

Formaldehyde does not affect Lurex in the concentrations used in after-treating dyes.

Mineral- and vegetable-based spinning oils used for wool have no effect on Lurex of any type, but animal-oil emulsion may delaminate Lurex and should be used only after careful trials have been made.

Most Dyes Are Satisfactory

Generally, the Lurex yarns in a fabric are left in the natural condition; so the dyes used should be chosen for their nonstaining effect on the protective film used. In all classes of dyes an occasional member may stain the film; but if the right dye is chosen for the film involved, the Lurex is left unaffected.

In general, dyes that stain white acetate yarn will affect the butyrate-acetate type of film; those that dye Dacron will stain the Lurex-MM and Lurex-MF types. Cross-dyed effects can be produced by applying this rule.

If the fabric has been prepared carefully and the dyes are selected for nonstaining characteristics, Lurex yarns will come through dyeing unstained.

For the butyrate-acetate films, direct, developed, vats, leuco-vat esters, naphthols, acid, chrome, and sulfur dyes are satisfactory within the limits mentioned.

Lurex MM works well with all these types except vats. The caustic necessary in reducing vat dyes will etch Lurex MM. Many disperse dyes can be used with this type without staining the film.

Lurex MF can be used with all the dyes mentioned.

All the Lurex types withstand the usual finishing procedures commonly used today.

Tension Control Is Vital

Where fabrics contain metallic yarns, the control of tension at all stages of manufacture and processing is most important.

If tensions result in exceeding the yield point of metallic yarns, breakage, dullness, and reduced resistance to chemical attack can be expected.

Metallic yarns placed in the warp are generally more susceptible to excess tension than those used in the filling.

CONTINUED ON PAGE 204

Better dyeing

by **INTERNATIONAL SALT COMPANY, INC.**—America's largest producer of salt

New, Economical Way to Get Better Color Yields in Dyeing

Dye plants and textile mills everywhere have found that Sterling TNA-5 Reagent gives superior results in neutral or alkaline dye baths . . . and in dye baths where a calcium- and magnesium-free brine is needed. Equally important, this remarkable dyeing reagent has proved more economical than the Glauber's Salt (anhydrous sodium sulphate) it replaces.

Developed especially by the International Salt Company for today's more critical dyeing needs, TNA-5 is free of any calcium or magnesium contamination. It is composed of fine, white, granular anhydrous crystals—and is classified as a "chemically pure" reagent. To show why TNA-5 is winning more and more acceptance, here's a review of the specific advantages it offers textile dyehouses:

TNA-5 is an efficient, economical replacement for Glauber's Salt (anhydrous sodium sulphate). In a neutral or alkaline dye bath, TNA-5 replaces Glauber's Salt effectively on a pound-for-pound basis. And substantial savings are always possible with TNA-5, because this new reagent is 50% to 65% less expensive than Glauber's Salt—even when packed in bags.

TNA-5 produces a better color yield by reducing dye precipitation. Because there is no calcium sulphate present in TNA-5, more dyestuff actually goes on and into the material being dyed. Or, to express it another way, less of the dyestuff remains in suspension to be washed down the drain. Actual tests prove that this superior exhausting action of TNA-5 produces a saving of 5% to 20% on the dyestuff used. What's more, dyers find that TNA-5 gives more level shades, and a soft, smooth finish.

TNA-5 is readily soluble in hot or cold water. Yet its exhaustion rate is approximately the same as for Glauber's Salt.

TNA-5 can be used dry or as brine with equal effectiveness. However, when TNA-5 is made into brine (which can be accomplished in the automatic Sterling TNA-5 Dissolver), users find a number of special advantages, such as bulk purchasing and easier handling.

TNA-5 is versatile. It can be used in a neutral or alkaline dye bath for dyeing cotton, rayon, or any blend of these fibers with wool. And it is equally effective in staple, yarn, or piece-goods dyeing. With direct, sulphur, or naphthol dyes, TNA-5 is especially helpful. Here, it produces excellent crock fastness and clear, brilliant colors. Naphthol dyeing has long been recognized as one of the trickiest of all processes, but with TNA-5 it is greatly simplified.

Another important point: TNA-5 has also won the approval of many dyestuff manufacturers. The main reason is that this remarkable new reagent permits their dyes to show up better on a variety of fabrics and fibers. In fact, dyestuff manufacturers were instrumental in getting TNA-5 tested and accepted in a great many plants throughout the country.

INTERNATIONAL SERVES ALL OF TODAY'S TEXTILE NEEDS

Through skilled and experienced technicians, International can help dye houses and textile mills get greater efficiency and economy in their dyeing processes. In addition to new Sterling TNA-5 Reagent, International produces high-quality Sterling Evaporated and Sterling Rock Salt in all types and sizes. And we also make automatic dissolvers in metal or plastic for these products. So we can recommend the type and size of salt most perfectly suited to a plant's needs.

If you'd like the assistance of an International technician on any problem concerning salt or brine—or further information on remarkable new TNA-5 Reagent—just contact your nearest International sales office. No cost or obligation.

International Salt Co., Scranton, Pa.

Sales Offices: Atlanta, Ga.; Chicago, Ill.; New Orleans, La.; Baltimore, Md.; Boston, Mass.; Detroit, Mich.; St. Louis, Mo.; Newark, N. J.; Buffalo, N. Y.; New York, N. Y.; Cincinnati, O.; Cleveland, O.; Philadelphia, Pa.; Pittsburgh, Pa.; and Richmond, Va.

HOW DYE HOUSES SAVE MONEY WITH STERLING TNA-5 REAGENT

Because TNA-5 gives consistently better color yield, less dyestuff is used in dyeing. For example, take the case of a dye house using $5,000 worth of dyestuff a month. By spending just $100 a month more for TNA-5 than for ordinary salt, this dye house saved approximately $375 on their dyestuffs each month. Of course, when TNA-5 replaces Glauber's Salt, still greater savings are possible because TNA-5 costs less. TNA-5 can also save on sequestering agents—and by eliminating redyes.

STERLING TNA-5

PRODUCT OF INTERNATIONAL SALT CO., INC.

PROCESS METALLIC YARNS

CONTINUED FROM PAGE 202

Cloth constructions involving long floats of metallic yarns in either warp or filling may dictate the wet-processing methods to follow. If the base fabric shrinks considerably in dyeing and finishing, long floats may loop excessively or be snagged and broken. However, if the proper metallic yarn is used, satisfactory wet-processing conditions can usually be found.

Metallic yarns used to decorate wool fabrics that are to be fulled are less subject to dimensional change when they are placed in the warp. Fulling shrinkage can be more easily controlled in the direction of the warp and should be confined to 3 to 5% for best results.

Another consideration that affects metallic yarns is residual chemicals left in processed fabric. It is important to remove all traces of processing chemicals. As an example, if significant amounts of caustic are left in wet goods, it may attack the metallic yarn during drying. The same principle applies to animal-oil bases used in wool spinning oils, which can attack metallic yarns over long storage periods.

Mechanical handling of fabrics containing metallic yarns should always be done with the fact in mind that overstretching, rough surfaces, and severe roping conditions will tend to damage the metallic yarns. In delicate fabrics, the metallic yarns may cause abrasion of the base fiber. Tacking such fabrics before dyeing will minimize the abrading action of the metallic yarns.

FINISH METALLIC-YARN FABRICS

CONTINUED FROM PAGE 119

effect on metallic yarns provided the time element is watched.

Dark shades are dyed with colors that couple with copper-resin complexes, which are applied in the resin-finishing bath to follow.

The great majority of metallic-yarn fabrics finished at Mount Hope are stabilized with modified urea resins. When additional body is required, the syrup-type melamine resins are added. Softeners that won't yellow during application are used to produce a good surface and provide lubrication.

The finish bath may also carry up to 2% of a copper-resin compound when dark shades are being finished. As previously noted, this product couples with the dye and greatly improves the washfastness of the heavier shades.

The finish is applied, dried, and cured in one run. A National multifan dryer housing is set to provide 260 to 280° F. of heat in the drying area and 300 to 320° F. in the curing section.

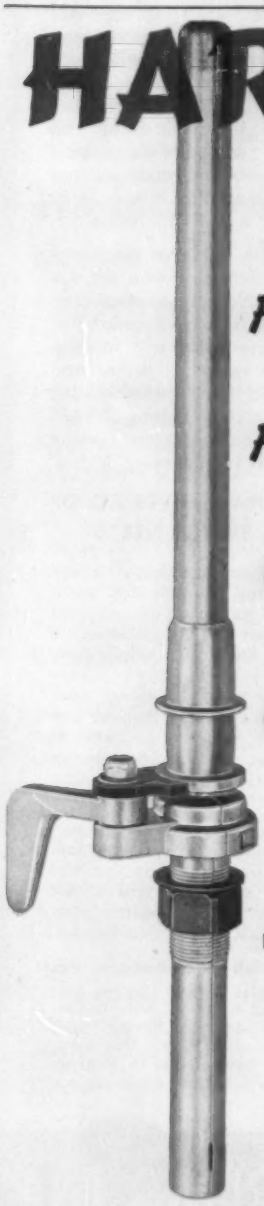
When the goods leave the tenter, they are finished and ready for the final examination and put-up department. Residual shrinkage of the fabrics is held to 2% by this finishing method.

Roy Stead, manager of the Henderson plant, has this to say about handling metallic yarns: "We've found that the goods we handle work very well under our methods, which stress a minimum of handling. That's the secret, if you can call it that, of successful handling of metallic yarns in any kind of fabric."

CHEROKEE MODERNIZATION

CONTINUED FROM PAGE 127

Canteens in the plant serve hot soup, sandwiches, desserts, and a variety of drinks through vending machines. Chairs are provided and employees can go into the canteens at any time to eat, smoke, or rest. Trained nurses are on duty in a model clinic at all hours for treatment of



HARTFORD HAS IT!

For Your Largest Spinning Package

For Your Lowest Yarn Counts

● Heavy Running Gear
- Heavier Blade
- Heavier Bearings
- Longer Base

● Exclusive Cam Action Brake
- Hand Operated
- Positive Latch
- Sturdy Construction

HARTFORD
Pre-Lubricated Ball-Bearing
SPINDLES
For Twisting & Spinning
Run an Estimated 5 YEARS with NO LUBRICATION

HARTFORD MACHINE SCREW COMPANY
DIVISION OF STANDARD SCREW CO.
HARTFORD 2, CONN.

SOUTHERN DIVISION, ROUTE 3, BOX 314, GREENVILLE, S. C.

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Put strength, long life, silence into gears, couplings, loom parts with C-D-F Celoron® plastic

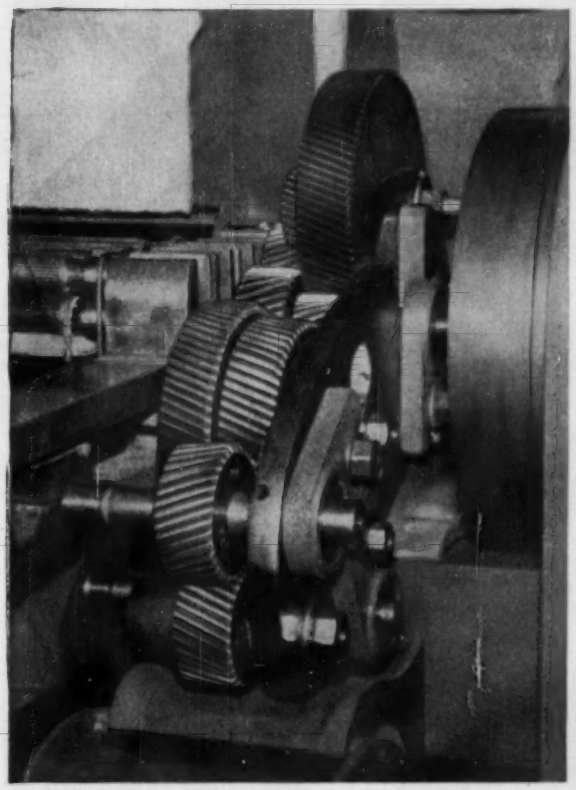
WORK MIRACLES IN TEXTILE MACHINERY—with this amazing golden plastic material! Celoron gears help eliminate noise, reduce wear on mating metal gears; and even the roughest-used helicals last . . . and last . . . and last.

HIGH MECHANICAL STRENGTH. Typical Celoron strengths: tensile, 6,500 psi; flexural, 10,000 psi; compressive, 25,000 psi; shear, 8,500 psi. Dimensionally stable and readily machined, Celoron fills the bill where costly metal parts fail.

ELECTRICAL INSULATION VALUE. Celoron is a non-conductor with high electrical insulation value. It makes ideal mechanical-electrical parts. Celoron couplings effectively insulate motors from driven machinery.

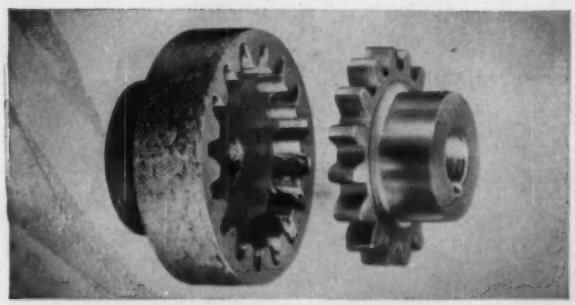
BETTER SERVICE FOR THE SOUTH. Besides having sales engineers in all principal cities, C-D-F maintains a specialized plant-warehouse stocking Celoron parts and Diamond Fibre receptacles for the Southern textile industries at 834 Hayne St., Spartanburg, S. C. Your Celoron gear blank, coupling, or loom part will reach you fast from this wide-awake distribution center.

Keep in close touch with *your* C-D-F sales engineer—a good man to know!

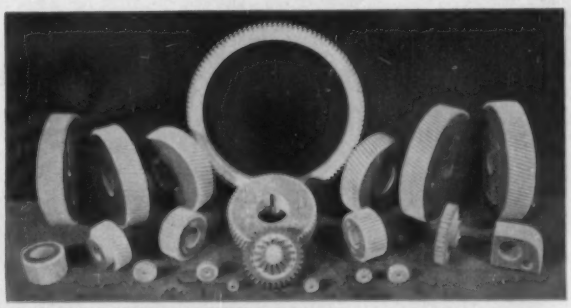


CELORON-TO-CELORON GEARS in drawing rolls made by Ideal Industries, Inc., Bessemer City, N. C. These are helical-cut gears—the toughest to machine, requiring the toughest material. Celoron is it. Other Celoron parts for this application are shown below, top right.

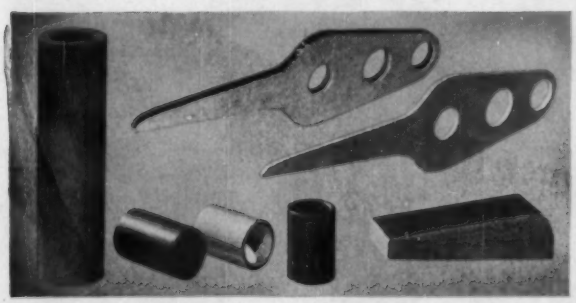
CONTINENTAL DIAMOND FIBRE
CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.
NEWARK 55, DELAWARE



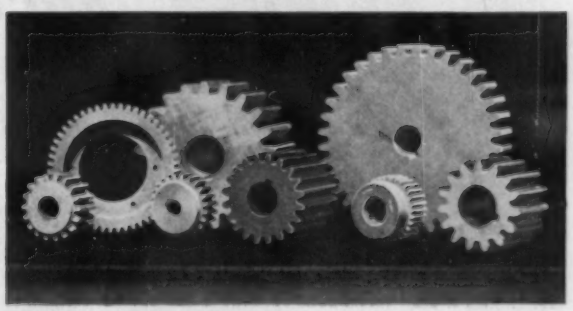
LOW-COST, EASILY-ASSEMBLED C-D-F Celoron flexible coupling transmits power smoothly, efficiently, silently . . . needs no lubrication, works on vertical or horizontal shafts.



PRECISELY MACHINED KEYWAYS help keep these Celoron parts silent and strong in the Ideal drawing rolls illustrated in top photograph. Note wide range of sizes and shapes.



YEARS OF SERVICE, freedom from maintenance, resistance to moisture—that's what these C-D-F parallel plugs, knife guides, binder bushings give the mill operator.



STRONG, SILENT CELORON makes both drive and driven gears. Metal gears don't develop excess play, last longer when they mate with Celoron. Many applications are 100% Celoron-geared.

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"Bright idea"

Your company name and message show up better on brighter, smoother H&D Corabrite corrugated boxes. Improving product identification is always a bright idea. Better see H&D.

HINDE & DAUCH

Subsidiary of West Virginia Pulp and Paper Company

AUTHORITY ON PACKAGING • SANDUSKY, OHIO
14 FACTORIES • 42 SALES OFFICES

injuries or to relieve any illness on the job.

Cherokee has consistently operated at a profit. These profits are shared with the employees each year in the form of Christmas bonuses. The bonuses have varied from one-half of a week's pay to three weeks' pay.

For the fiscal year ending Sept. 29, 1956, the mill showed a profit of 2.3% of sales despite the production lost moving and restarting in the new location. However, the cost of moving and loss on the sale of the Knoxville building was much more than the manufacturing profits. The Knoxville plant brought only $380,000, about half of its book value.

The management of the mill looks forward to a bright future. To quote H. G. Morrell, secretary and plant superintendent of Cherokee:

"We have an up-to-date plant in a desirable location. The labor market is good, and most of the people we hire are residents of Sevier County. We realize the importance of good public relations, and every Cherokee employee is concerned with making a favorable impression for both himself and his company in this community of which we have become a part."

PLY-YARN WINDING

CONTINUED FROM PAGE 125

length, within narrow limits.

The standard length must be determined by the end use of the yarn. The length of tail for one particular yarn may not be suitable for another yarn. The minimum length must be determined closely because a knot that's too short may pull out in the next yarn department.

Before automatic knotters became common, it was not unusual to find knots in the same yarn varying in length from $\frac{1}{8}$ to 1 in. or longer.

Research on one yarn showed that a minimum tail length of $\frac{1}{8}$ in. and a maximum length of $\frac{5}{32}$ in. was best. On another yarn, a standard length of $\frac{1}{4}$ in. was set, with a minimum of $\frac{7}{16}$ in. and a maximum of $\frac{9}{16}$ in.

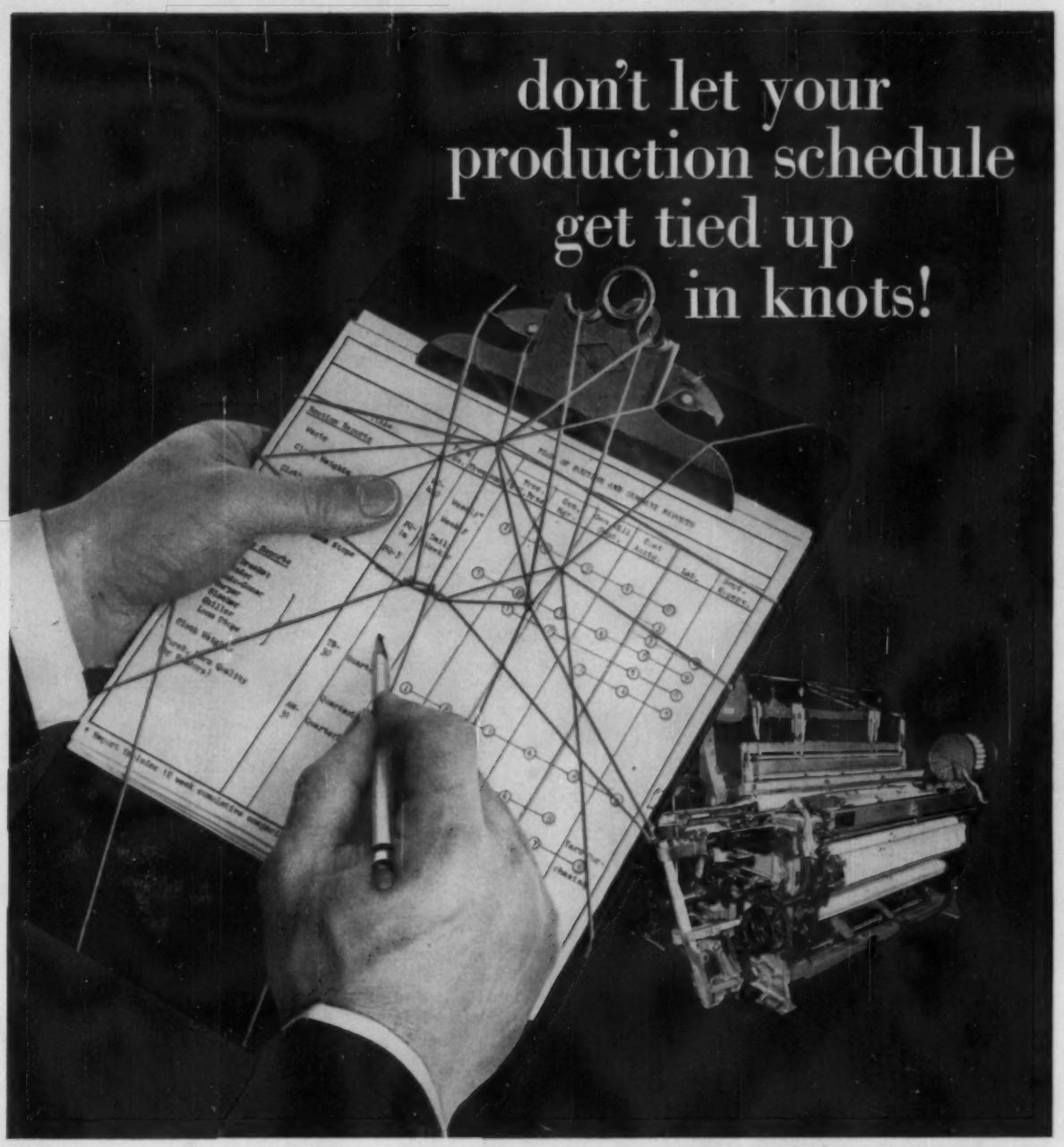
Of course, the length of knots from each knotter should be examined periodically.

Clean Yarn for Two Reasons

Cleaning the yarn is another important phase of winding. Generally most yarns have better sales possibilities if they are cleaned.

Cleaning is done for two purposes. First, yarns are cleaned so that management men will know the quality of the yarn. With this cleaning, the cleaners are set very close to the yarn diameter so that all faults in

← For more data, write this page number on Reader-Service card.



The most realistic schedules can go awry. Suddenly there's a knot in the yarn—it breaks, the loom stops—and up go costs.

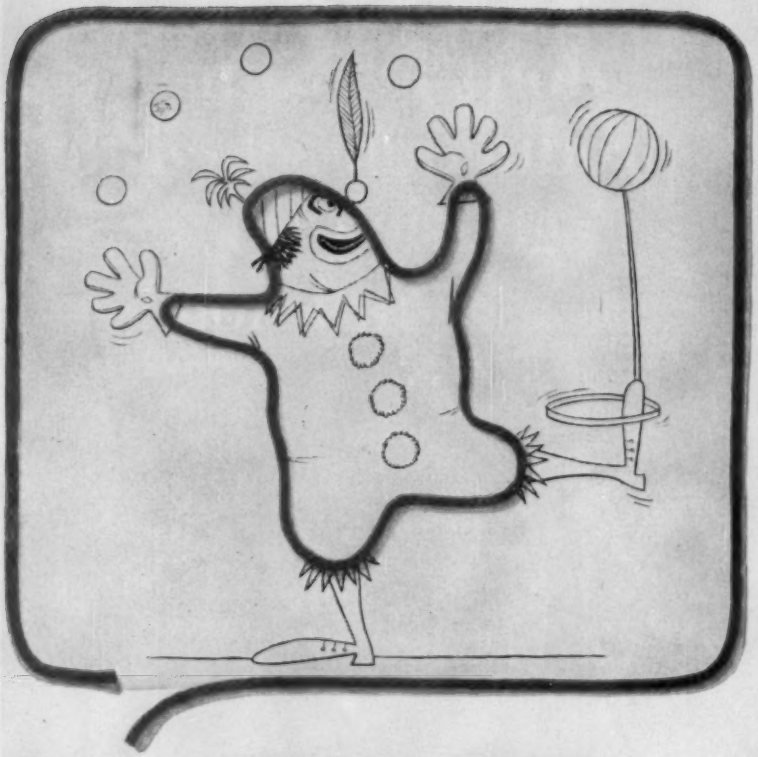
With IRC Continuous Process Rayon, it's a cinch to curtail breakdowns. No other yarn is so free of knots, puff balls, of flaws that plague ordinary rayon. And no other yarn dyes so free of streaks.

That's why weavers of critical fabrics like failles and satins *insist* upon IRC Continuous Process Rayon. It cuts down seconds, increases mill efficiency, keeps them smack on schedule.

Solve *your* knotty problems—use IRC Continuous Process Rayon; it costs no more!

Use IRC Continuous Process Rayon...uniform mile after mile . . . perfect inch by inch . . . and it costs no more!

For more data, write this page number on Reader-Service card. →



BALANCED PERFORMANCE . . .

Precision balance plays a major role in the performance of National-Sterling Ring Travelers.

Increased spindle speeds make it imperative that every traveler you use be in perfect balance. The slightest deviation can generate enough friction to cause excessive wear and increase costly ends down. To protect you against such losses, National-Sterling offers quality-controlled travelers which are not only precision balanced but absolutely uniform in weight, dimensions, temper and finish. Result: travelers which consistently deliver more pounds of first class yarn . . . at higher speeds . . . with fewer ends down.

Find out now how National-Sterling Ring Travelers can cut *your* production costs. Write, wire or phone National Ring Traveler Company and Sterling Division, 354 Pine Street, Pawtucket, R. I., or Southern Office and Warehouse: P. O. Box 112, Gaffney, S. C.

NATIONAL Sterling RING TRAVELERS

NATIONAL RING TRAVELER CO. PAWT. R.I. U.S.A.

F. L. CHASE, JR., Pres. & Treas. L. E. TAYLOR, So. Mgr.

FOR SPINNING AND TWISTING ALL NATURAL AND SYNTHETIC FIBRES

There's a NATIONAL man nearby!

T. H. BALLARD, 112 N. 9th St., Belmont, N. C. • F. S. BEACHAM, P. O. Box 511, Honea Path, S. C. • H. A. CARTER, 354 Pine St., Pawtucket, R. I. • D. C. CREECH, P. O. Box 5083, High Pt., N. C. • H. D. LANIER, P. O. Box 421, Shawmut, Ala.

Export Agent: A. M. ROMERO CORP., 350 Fifth Ave., N. Y. 1, N. Y.

the yarn are apparent.

Then a decision can be reached on the defects that can safely be passed. Usually a standard blackboard of permissible defects is made to guide winding-department employees.

The second type of cleaning is done for sales reasons, and the cleaners are opened more. A feeler gauge is used as a standard for each yarn number wound.

Don't Chafe the Yarn

Too close setting of cleaners results in chafing the yarn. Since chafing reduces the strength of the yarn, it's important to set cleaners correctly.

When a new yarn number is to be cleaned, it's a good practice to twist a sample of the cleaned yarn and compare it for strength with a sample of uncleaned yarn.

After the proper cleaner settings for a yarn have been established, a procedure should be set up for checking the types of faults and number of faults in the yarn before it reaches the winder. This procedure will also furnish data for reducing the faults.

Operators should be trained to report any condition that creates yarn breakage or any other condition that's injurious to the yarn.

QUALITY'S SEWING ROOM

CONTINUED FROM PAGE 129

The new addition to Quality Mills added 20,000 sq. ft. of floor space to make a total of 80,000 sq. ft. The Solite blocks used in the construction are 16x8x8, and they are laid one above the other and locked with steel herringbone reinforcements. The original building has been veneered with the Solite block to match the addition.

The Solite blocks are painted blue on the outside, and the inside walls are green. Steel beams have replaced the walls that were removed while the mill was closed for two weeks.

Aluminum-framed louvered windows with glareproof glass that reduces heat and glare are installed in the new sewing room. The overhead lighting is arranged to give 40 candle power at the sewing machines, but an individual light on each machine boosts this light to 90 candle power at the needle.

Floors are ¾-in. oak laid with strip-and-groove construction. Heating is done with steam units located on the ceiling facing the walls. Windows on the north side of the sewing room are opened during the summer nights, windows on the south side are closed,

BEACON COAL

EASTERN GAS AND FUEL ASSOCIATES

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HOW TO COUNT YOUR PROFITS

Full height hinged panels for economy in cleaning and maintenance

and here's how much

Completely automatic operation through feed, squeeze rolls and dryer

Increase production 33%—Decrease labor cost more than 33%

Figures comparing one year's operation of new SARGENT DRYING EQUIPMENT with older machines, show considerable savings in dollars and cents, *plus* better quality work.

HERE ARE THE FIGURES:

	Older Equipment	*New SARGENT Equipment*
Machines:	1 conventional feed 2 centrifugal extractors 1 8-section dryer	1 rotary-type feeder 1 pneumatic squeeze roll 1 8-section dryer
Operated:	7 days a week 3 shifts a day	5 days a week 2 shifts a day
Production:	350 lbs per hour	1,000 *up*, lbs per hour

And more uniform drying, day in, day out, with the new SARGENT machines. Whether you work with cotton or wool or synthetic fibres,

How much per pound savings would this mean to your mill?

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA 19 — F. E. Wasson, 519 Murdock Road
CINCINNATI 15 — A. L. Merrifield, 730 Brooks Avenue
CHARLOTTE, N.C. — W. S. Anderson, Carolina Specialty Co.
ATLANTA, GA. — J. R. Angel, Mortgage Guarantee Building
TORONTO 1, CAN. — Hugh Williams & Co., 27 Wellington St. East

and two ceiling fans draw cool air into the room.

Thread racks are located at various parts of the room, and each rack contains a full complement of colors and sizes of thread. There are now 22 telephones placed around the mill, and each telephone can be connected to the public address system for relaying urgent messages.

The quality-control system at Quality Mills works with a cloth-shrinkage system [TEXTILE WORLD, April, '56, p. 104] to put better-knitted goods on the market. As a result, returned goods are a negligible figure.

CONTROL HOSIERY LENGTH

CONTINUED FROM PAGE 151

Check the sinker play between the slur cam and verge plate on each side of the section for 0.002 in. The jack head or verge plate may be minutely adjusted to this 0.002 in. on each side of the section.

Recheck After Adjustments

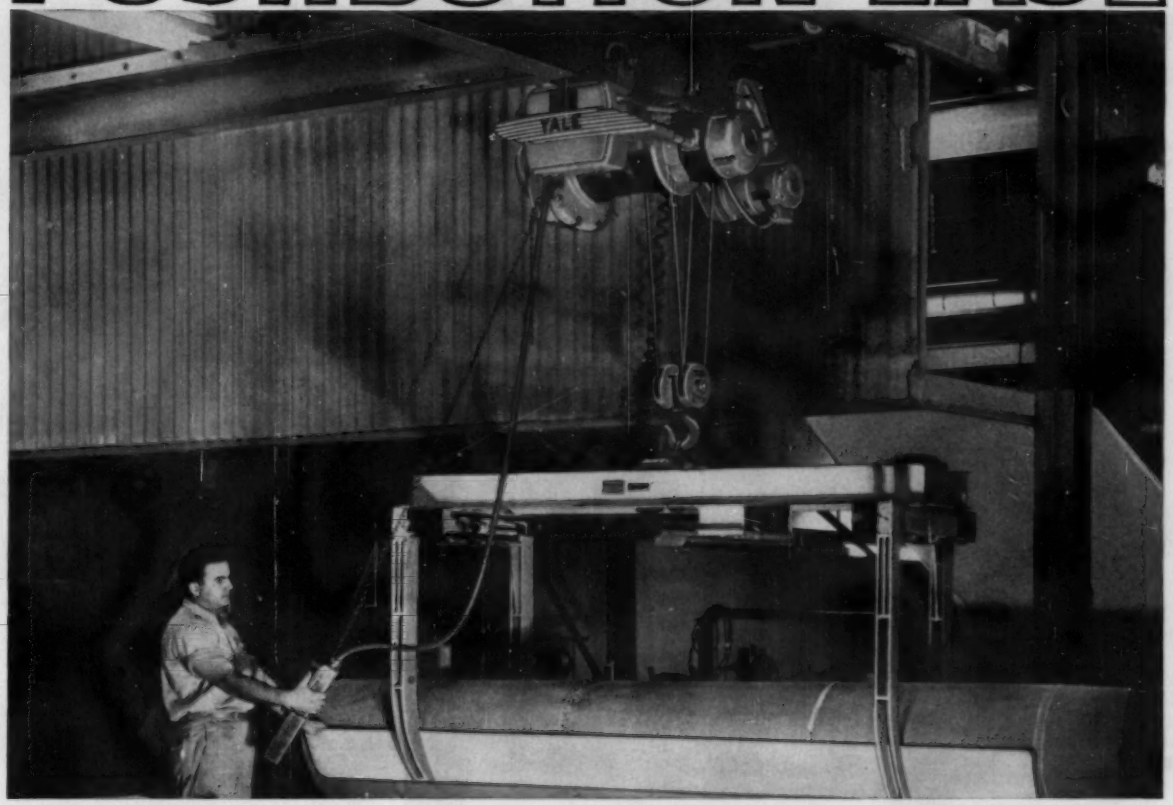
The needle bar should never be moved out or in on one side unless it is not square with the table gauges. Extreme care must be exercised where this adjustment must be done. After the needle-bar hinge is tightened and square with the table gauges, check the centering of the needle bar because it will sometimes be misaligned with the sinker head. After each adjustment, recheck a stocking on the selvage tester.

If a stocking is knitting ½ in. short on one side in the leg and it is OK in the foot, the routine for squaring the leg must first be followed. Then follow the routine for the foot if the foot has changed. A stocking will sometimes be short on one side in the leg and short on the opposite side in the foot. Here again, follow the routine for the leg first and then the routine for the foot.

These rules will help keep uneven sides to a minimum. Each knitter, as he begins his shift, should check the threading of all yarn in the carrier holders and each section after a press-off during his shift. This practice will keep yarn from being caught around a carrier-holder screw head, which causes a substantial percentage of uneven sides as well as short lengths.

No knitter should be permitted to change the threading or tension of yarn without permission. A check should be made of that particular stocking on the selvage tester if the tension is changed. If a verge plate is moved or replaced, that stocking

PUSHBUTTON EASE



EASY CONTROL OF YALE HOIST SPEEDS HANDLING OF BIG, AWKWARD LOADS

Equipped with a mechanical grab attachment, this Yale Cable King Electric Hoist picks up, lifts and moves carpets with amazing speed and ease. The entire operation is pushbutton-controlled, thus requires a minimum of operator effort. As a result, handling operations take less time...operator fatigue is drastically reduced... interdepartment movement of awkward loads is smooth ...shipments leave on schedule.

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ACCURATE LENGTH STAPLE

ON A *Taylor-Stiles* CUTTER

If you must cut continuous filament glass fiber into accurate staple lengths, it will pay you to learn about Taylor-Stiles glass fiber cutters.

Taylor-Stiles cutting machines are widely used in the textile industry for cutting glass yarn, thread waste, continuous filament synthetic yarns, and rags. They are used in many other industries such as plastics, rubber, paper, glue, etc.

Taylor-Stiles have three-quarters of a century of experience in manufacturing industrial cutting machines and machine knives. Every Taylor-Stiles cutter is designed for the specific job it is to do. Taylor-Stiles knives are of the correct composition, temper, and design for each material cut.

It will pay you to learn more about Taylor-Stiles glass fiber cutting machines today.

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Send me description and full details regarding Taylor-Stiles glass fiber cutters.

NAME .....

COMPANY .....

STREET .....

CITY ..... STATE.....

should also be checked immediately.

Seamers should also be instructed to have any uneven stocking immediately returned to the knitting department to be checked. As this practice makes their jobs easier, seamers are anxious to cooperate. This follow-up check on the selvage tester will, in rare instances, find the seaming machine or operator at fault.

Finally, any yarn or style change calls for an immediate check. If possible, one man should be responsible for all adjustments for over-all and heel lengths and uneven sides throughout the plant. This system will keep uneven sides to a satisfactory minimum.

ELIMINATE HARNESS SKIPS

CONTINUED FROM PAGE 130

point where they do not engage the vibrator gear properly, the cylinder should be replaced.

By turning the head-motion hand wheel, the teeth on the vibrator gears may be inspected. If the teeth are worn so that they do not mesh with the cylinder gear properly, they also should be replaced.

The teeth on the evener comb that keeps the vibrator gears evenly spaced and parallel to each other should be inspected. Broken teeth will allow the vibrators to move out of line with the risers or sinkers on the pattern chain and may cause the harness to raise or lower at the wrong sequence. If any teeth are missing, the comb should be replaced.

The operation of the lock knife is also very important in avoiding harness skips.

The lock knife should be in before the first tooth of the cylinder gear engages the vibrator gear and should remain in until all of the vibrator gears are locked in place. It should also be timed so as to move in and out without touching the tips of the vibrator levers.

Faulty Chains Cause Most Skips

The purpose of the lock knife is to prevent the vibrators from lifting when the cylinder gear engages the vibrator gears. Tension of the lock-knife spring should be strong enough to hold the lever down if it should lift. The lock-knife blade should be replaced if there are any places worn that might allow the vibrator lever to lift.

The loomfixers should also check the complete head motion and adjust or replace any parts that may cause improper harness operation. The pattern chain must function properly or it may cause harness skips. Faulty pat-

Helpful answers to CAUSTIC QUESTIONS

As a leading producer of Caustic Soda, Columbia-Southern is asked many questions every month about this versatile, widely-used alkali. While the answers probably are not completely new to every Caustic Soda user, they do re-emphasize certain basic points that shouldn't be forgotten. We hope that you will find this series interesting and helpfully informative.

What is the necessary raw material for Caustic Soda?

Plentiful supplies of brine are required for the electrolytic production of Caustic Soda. This process also liberates Chlorine as a co-product. An electric current is passed through a sodium chloride brine solution contained in specially-designed cells. A 10-12% Caustic Soda solution forms at the cell's cathode. This low concentration liquor is evaporated to yield the various concentrations desired.

Is Caustic Soda an element?

No. Caustic Soda is a compound of sodium, hydrogen, and oxygen. It is known chemically as sodium hydroxide, and is commonly called lye.

How much liquid Caustic is now produced?

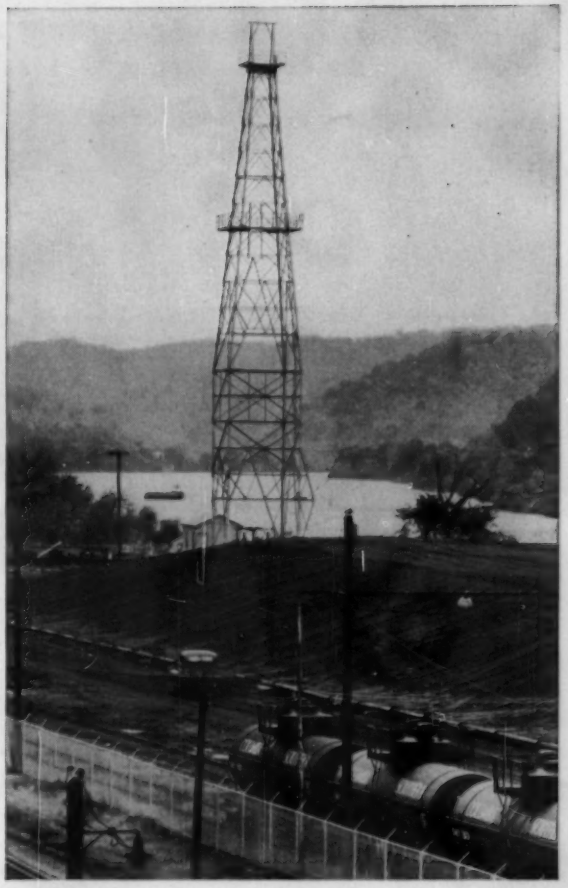
Latest six-month figures for the January-July 1956 period set the production of liquid Caustic at 2,169,368 short tons for electrolytically manufactured, 260,899 short tons for lime-soda process.

What type of pumps are recommended for the transfer of Caustic liquor from tank cars to storage, and from storage to the point of use?

Centrifugal pumps do the job best. All-iron construction with no brass or bronze fittings is generally preferred. For high temperature use, nickel or nickel alloy pumps will give longer service and the liquor will show less metallic contamination.

Who currently uses the most Caustic?

The chemical processing industry itself is by far the largest group user of Caustic, consuming roughly 25% of all production. Rayon and film producers rank second, followed by such large volume consumers as the petroleum refining, pulp and paper, cleaners, soap, textile, metals, vegetable oils, and rubber industries.



SOME OF THE WORLD'S DEEPEST BRINE WELLS, operated by Columbia-Southern to supply the New Martinsville, W.Va., Caustic Soda-Chlorine plant, draw salt brine from depths of a mile and a quarter.

How much water is required to dilute a tank car of 73% Caustic solution to a more easily stored 50% concentration?

About 6,100 gallons of dilution water are needed to bring an 8,000 gallon tank car of 73% down to 50% strength; 7,650 gallons of water to dilute each 10,000 gallon car.

How can each user determine the most economical grade and form of Caustic to buy?

Much, of course, depends upon the user's end product and processing requirements. Solid, standard flake, 50% and 73% solution, all have certain advantages. Processing advances, transportation developments and freight rate changes, however, dictate a periodic review of your purchasing. Columbia-Southern will be happy to look for economies you might well realize . . . at no obligation to you. Call, write or wire our Pittsburgh address for the prompt services of experienced Caustic Soda specialists.

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In textiles today...
it pays to take a
Plant-Wide Look
at weighing!

which do you have...

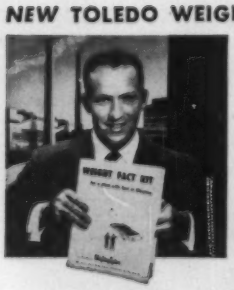
isolated scales... or a modern
weighing system to control your costs?

The textile industry is under pressure . . . to reduce costs . . . raise efficiency. And managements today see *weighing* in a new perspective—not as isolated scales, but as a vital element in the overall cost-control system. This means the right scales in the right places . . . to supply basic accounting records of materials received, processed, shipped, transferred.

Weight records directly affect costs, inventory control and customer billings. Weights must be right the *first* time. Whether discovered or not, weighing errors can lead to losses in profits and customer good-will.

To assist you with your "weight control" problems, Toledo offers the choice of a complete line of models, plus the experience and services of factory-trained representatives conveniently near you.

NEW TOLEDO WEIGHT FACT KIT . . . *Shows you the job your scales are now doing!* This new Toledo Weight Fact Kit will help you determine how well your scales measure up as a *weighing system*—show you if any scales are "misfits" in capacity, application or location—help you detect weighing inefficiencies that drain off profits. It's free—no obligation! So be sure to request yours. Address Toledo Scale Co., 1409 Telegraph Rd., Toledo 1, Ohio.



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HEADQUARTERS FOR SCALES

SERVICE Factory-Trained 200 Cities

tern chains are probably the cause of most harness skips.

Old chain stock that is worn should be discarded. One riser or sinker that is worn to a point where it may not raise or lower the harness properly may cause a skip. Unnoticed, they may cause the fabric to become unmerchantable.

Chain builders should check their chains and make certain that they are built exactly as the draft. Worn parts should be discarded.

Spacing Rings May Be Used

When the chain is put on the loom, some capable person should be delegated to check each bar, riser, and sinker in relation to the vibration levers. If the chain does not line up, the cause should be determined. If the vibrators are bent, they should be removed and either straightened or replaced. If some of the risers do not line up, spring steel spacing rings may be used. A type that is inserted by means of a special tool may be secured from one of the textile-supply companies.

With new chain stock, it should not be necessary to use any spacing rings to line up the chain. Old and worn chain stock is almost certain to cause trouble and should be discarded.

After a new warp is started, the first few yards should be inspected very carefully. A head end should be taken off and inspected, both face and back. Some mills make it a practice to put a special red ticket on the first piece woven to designate the first cut. This cloth is rushed to the examining department. This action prevents the first cut from becoming buried under a number of cuts and not examined until after a second cut is woven.

Harness skips may also be caused by the loom turning beyond front center when the filling breaks. This is usually due to the brake motion not working properly. Weavers should be instructed to stop a loom and report to their loomfixer any loom that does not stop at least ¼ in. before front center.

CLINTON'S WEAVE ROOM

CONTINUED FROM PAGE 155

defects are found by the cloth inspectors in the cloth room, a ticket listing the loom numbers and type of defect is sent immediately to the weave-room second hand, who has the loom fixed or takes other corrective action.

The looms in the new room are weaving 80-square sheeting, broadcloth, and other plain fabrics at this

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Stainless is used extensively in the backwasher shown at left, and the scouring machine below, both manufactured by C. G. Sargent's Sons Corporation, Graniteville, Mass.

HOW

stainless

HELPS PRODUCE BETTER YARNS AT LOWER COST

Here are some of the reasons why *stainless* is the best friend the textile mill ever had:

Resists Corrosion — Lasts Longer — Stainless just about never wears out—and its smooth, rust-free surface resists the corrosive bite of most chemicals used in textile manufacture. The backwasher and scouring train illustrated, for example, use stainless wherever liquors or chemicals come in touch with metal. Their manufacturer says, "The caustics and acids used, particularly in scouring heavy grease wools, are pretty strong stuff—few other metals would stand up under such exacting conditions."

Stainless Babies Fibres — Stainless presents a smooth, non-snagging surface to stock in transit through dryers —especially important with cashmere and other soft, tender fibers. And stainless is just as vital for parts such as teeth and rakes in openers and pickers. "For stainless helps do a more thorough preparatory job without damage to fibers—makes for better, easier, far more economical production of first quality yarns." And, of course, stainless is about the easiest material to keep clean that you can find.

There's a lot more to the story of how stainless means greater efficiency—greater profits in the textile mill. Much of it is contained in Crucible's 32-page booklet, "Making the Most of Stainless Steels in the Textile Industry." Write for your free copy today.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

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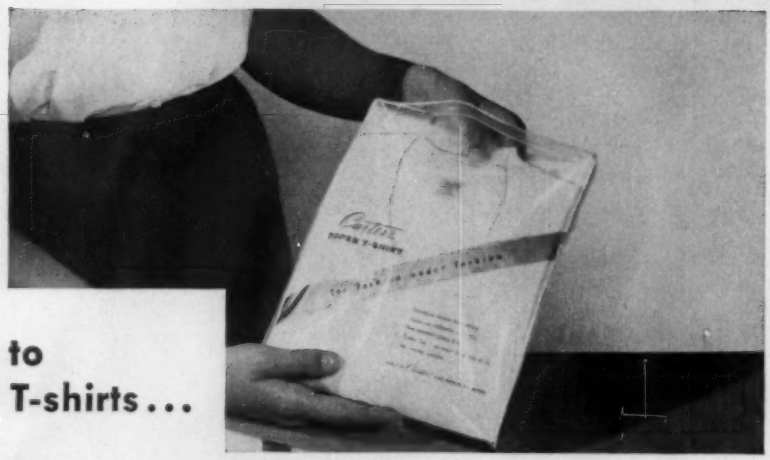

Bemis is the textile industry's top source of packing and packaging

Whatever your needs . . . sturdy waterproof bale and roll covers* and bale caps*—burlap Tite-Fit Tubing*—paper covers* for textile rolls—burlap piece goods . . . and now, Flip-Close* and other fast-selling polyethylene packages . . . Bemis is your top, dependable source.

Ask for the *full* story about the help Bemis can give you.

*Bemis *developed* these.
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writing. The loom efficiency is 97½%, with only about 1½% of the total being off-quality cloth.

The 1,296 looms in the No. 2 weave room at Clinton are housed in a new one-story addition to the mill. This new room has 121,000 sq. ft. of production area and is windowless. It is insulated with a 2-in. layer of Foamglas between the outside face brick and the glazed-tile interior wall. The cellular-glass insulating material is also used on the roof. There is no condensation problem.

Four evaporative cooling units, each with a rated capacity of 80,000 cu. ft. per min., are mounted in penthouses on the roof of the building. The temperature of the room is held within an 80 to 82° F. range, and the relative humidity remains at an almost constant 80%.

BOOK REVIEWS

CONTINUED FROM PAGE 201

COMMERCIAL WAXES, edited by H. Bennett; Chemical Publishing Co., Inc., 212 Fifth Ave., New York, N. Y.; 698 pages, $15.

This revised edition of a previous book has been brought up to date to include much new information on natural and synthetic waxes.

Mineral, vegetable, animal, and synthetic waxes are covered in detail. Over 160 tables list important data on the physical and chemical properties; 60 graphs show at a glance the relationship of physical properties.

There is a wax formulary comprising hundreds of formulas from important branches of the industries in which waxes are used. The volume contains a symposium contributed by experts and leading manufacturers. A glossary and index complete the book.

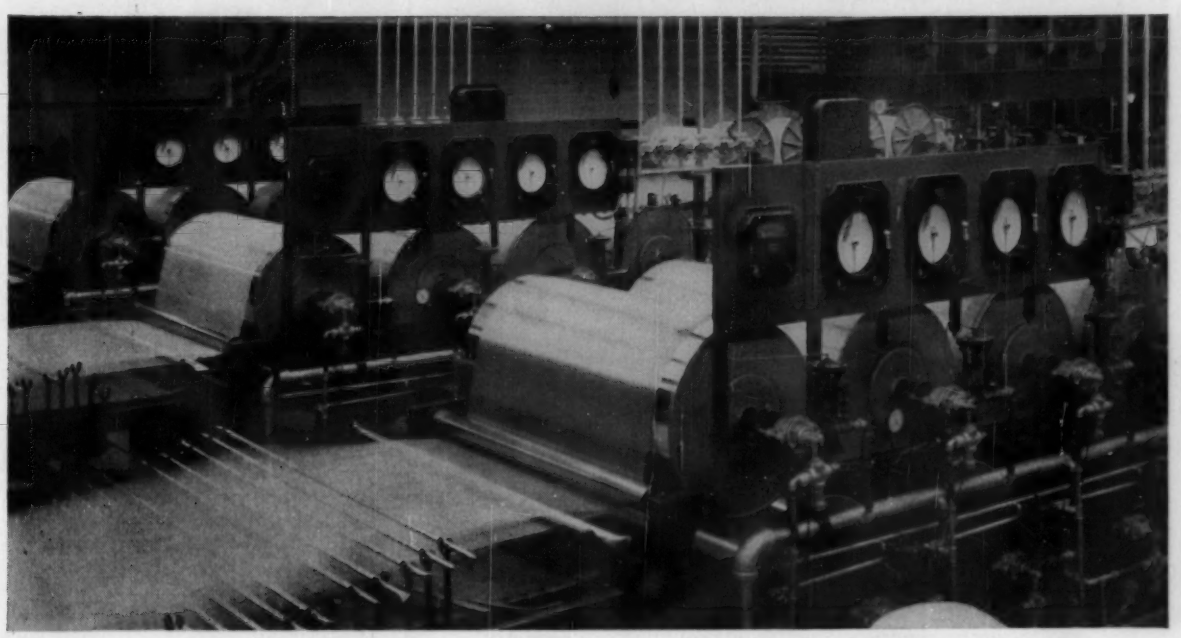
FLOCKED PRINTS

CONTINUED FROM PAGE 149

applied by engraved rolls fed from the doctor blade in the same way as the flock adhesives.

Velveray keeps a constant check on the washfastness and dry-cleanability of its product. Every lot is sampled and given a 120° F. wash test and a dry-cleaning test. A point that is watched on these fabrics is the ability of the flock to stay put. The adhesives must be able to hold the flock through moderate washing and dry cleaning cycles, or the job is considered unacceptable.

"Taylored"
to the LIGHTEST FILAMENTS
or the **HEAVIEST SPUNS...**



FOR the best slashing results, the Taylor method of controlling moisture content of the yarn by regulating the surface drying temperature of the slasher cylinders is the most accurate of any yet devised. And there are Taylor systems for the lightest filaments or heaviest spun yarns.

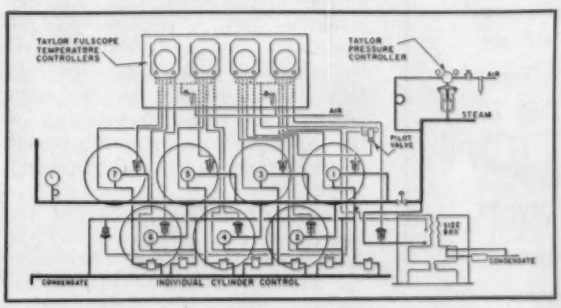
It has been proven that the Taylor Control System will increase weave room efficiency regardless of the type of yarn being run, or the number of cylinders on your slasher.

Two other big advantages are quick, automatic start-up (heat up time is reduced as much as 75%) and the Taylor system of air injection. This gives accurate control regardless of operating temperature.

Whether your high-speed slasher is 5, 7, 9, or 11-cylinder, rayon or cotton, you can equip it with Taylor individual or group cylinder control.

• • •

Ask your Taylor Field Engineer, or write for **Bulletin 98229** for details of Taylor systems for *size cooking*, *storage kettle temperature control*, *size box level and temperature control*, as well as *slasher cylinder temperature and pressure control*. Taylor Instrument Companies, Rochester, New York, and Toronto, Canada.



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The Largest Trade Show for Knitting Executives

KNITTING POWER NET

CONTINUED FROM PAGE 145

temperature and humidity are low.

The rubber beam is now ready to be placed on the machine to be tied in with the previous beam. If the fabric from the beam that has finished and the one to be tied in are shipped to the same customer, you should insure that the modulus of both rubbers is identical or very close. To do so, test representative samples of several rubber threads to determine the differences in the modulus of the covered rubber threads compared with the previous beam.

The movement of a guide bar on the machine is from either a pattern wheel or a chain. In either case, the setup for power net is:

Bar 1—2-0, 2-4, 4-2, 4-6, 4-2, 2-4,
Bar 2—4-6, 4-2, 2-4, 2-0, 2-4, 4-2,
Bar 3—2-2, 0-0,
Bar 4—0-0, 2-2,

The threading for all bars is one in, one out.

Heavyweight fabrics are produced on 24- and 36-gauge machines, medium-weight on 36-gauge, and lightweight on 48- and 56-gauge.

Constructions Are Varied

A typical example of a heavyweight fabric produced on a 36-gauge machine may consist of 60s core extruded rubber-covered top and bottom yarn with 150-den. rayon, with a yield of approximately 1.4 sq. yds. per lb.

A medium-weight fabric made on a 36-gauge machine may consist of 65s core rubber-covered top and bottom yarn with 150-den. rayon knitted with 70-den. nylon, with a yield of approximately 1.6 sq. yds. per lb.

A lightweight fabric made on a 48-gauge machine may consist of 75s core rubber-covered with 75-den. rayon and knitted with 50-den. nylon to give a yield of approximately 1.5 yds. per lb.

The finished fabrics will have about 206 stitches per inch with 40 or 41 rubber yarns per inch in the lightweight fabric, compared with about 144 stitches and 32 rubber yarns per inch in the medium-weight fabric and only about 108 stitches and 25 rubber yarns per inch in the heavyweight fabric.

Tension on the knitting yarn varies from 15 to 20 grams in the heavyweight fabric to 40 to 45 grams in the lightweight fabric, with about 30 to 35 grams in the medium-weight fabric.

The knitting yarn passes over the tension bar with the springs pulling against the knitting yarn. The greater the distance between the tension bar

(Advertisement)

Questions & Answers on... FLOOR MAINTENANCE

Have floor maintenance costs gone up in the last 6 years?

No. They are 30% to 60% less today than in 1951, according to mills using the Tennant System. New seals last 4 times longer, have a better gloss, are easier to clean. Mechanical buffing (dry cleaning) is needed only about 1/10 as often as before. Modern floor care methods are very economical.

•

How often is sanding necessary?

Sanding is now a one-time job with today's maintenance techniques. A correctly sealed and finished floor, properly cleaned and renewed, should never require resanding.

•

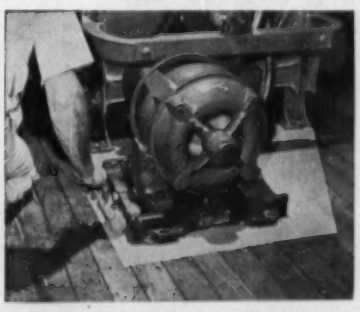
How frequently should our weave room floors need dry cleaning?

Today, rapid dry mop sweeping is sufficient for about 95% of all daily maintenance on correctly sealed floors. As a result you need not dry-clean most weave rooms oftener than at 2-month intervals.

•

How should floor care be scheduled?

Use a master chart showing each department and recommended finishing and maintenance techniques. An attractive 16 x 20 chart, "Guide to Textile Floor Maintenance" is available free from the Tennant company.



Special paint hides dark, oily areas.

What treatment is best for oil-soaked areas under looms, etc.?

Use an attractive masking paint like Tennant No. 201 Oil-Cover Paint. It dries in about 30 minutes, resists oil discoloration, cleans easily. Photo shows typical use around loom motor. Colors: gray, tile red, yellow.

For FREE chart and other data, write G. H. Tennant Co., 737 N. Lilac Drive, Minneapolis 22, Minn.

Tennant shows 127-year-old EXETER MANUFACTURING CO.

how to make floors TWICE as bright — at ½ the cost

Here, in America's oldest cotton mill (in continuous use since 1827), the TENNANT System works its modern magic on the famous floors in Exeter, N.H.

You see the results above. The *tennantized* area (right) is easily twice as bright as before. Yet mills tell us it costs about 50% less to get such results *today* than it did just 5 years ago.

Here's why. Improved Tennant techniques now make floors far brighter, more dirt-resistant. Result: you save 40% to 60% in manhours, buff only 1/5 to 1/10 as often as before, and get 4 times longer average life from newly developed floor seals.

Write today; ask for estimate of NEW savings now possible in your mill.

VERY LITTLE BUFFING is needed today to keep Exeter's historic floors bright. Mill was built shortly after War of 1812.

TENNANT
ESTABLISHED 1870

G. H. TENNANT CO.
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Minneapolis 22, Minn.

FLOOR MAINTENANCE SYSTEM

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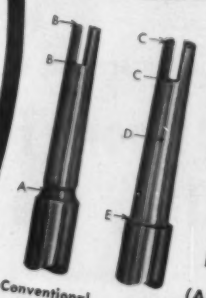
2 new products to improve machine performance

New Lifting Rods won't hang or warp

These Ideal Lifting Rods have a "super-slick" polish which prevents sticking in bushings. Will solve your sticking and shaking problems and outlast other lifting rods. Plain or induction hardened, with machined or new type ground tops — held to tolerances of ± .001". New bushings, shoes, and reamers furnished if desired.

New Type Roving Spindles



Prevent collection of fibres
Fit barrel hubs perfectly
Last longer

(A) Catches Lint (B) Square

New type shoulder (E), induction hardened, increases the life of the flyer hub (D). Precision ground to factory specifications. Tolerances held to ± .0005. Rounded corners and slots (C) are a great improvement over conventional roving spindles, and pay dividends in better work and longer service. This new design top can also be had on reworked spindles, with tops and feet hardened to withstand wear. In frame lots—from $1.80.

Write for further information and prices on these and other Ideal lines.

Flyer Reconditioning Service
Flyer Tune-up Service
Top Roll Reconditioning
New and Reworked Pressers

Ideal Machine Shops, Inc., Bessemer City, N. C.

Continuous Service to Textile Mills Since 1925

and the arm holding the opposite end of the spring, the more tension is applied. The tension is measured by a tensiometer at intervals of several hours to insure that a constant tension is maintained.

How To Measure Tension

Tension of the rubber yarn is controlled by much heavier springs than for the knitting yarn. Here's how to measure the tension on the rubber beam:

Make two marks 10 ins. apart on one rubber thread while the machine is stopped. Make sure the lower mark is about 6 ins. from the bottom of the guide. Stretch the thread to its utmost, and measure the distance between the two marks. If the distance is less than 10½ ins., the rubber is too tight. If it is over 11 ins., apply more tension. The correct result is between 10½ and 11 ins.

When the rubber beam is run too tight, broken rubber ends will result. When rubber ends are pulled out to their utmost or even beyond this point, a broken end will cause considerable trouble when the operator tries to straighten it.

The immediate release causes the rubber to bury itself, and it twists around other ends. To prevent this fault, use a reed of the same gauge as the gauge of the machine and thread the rubber ends through the reed.

Position the reed midway between the rubber beam and the guides. When an end breaks, it will then be caught in the reed and no time will be lost in getting the machine to run again.

How To Recognize Faults

Because power net is an expensive fabric, additional care must be taken to reduce imperfections to a minimum. These imperfections are caused by the rubber beam, the knitting beam, the knitting elements, and dyeing and finishing.

With good control during warping of the knitting yarn, the out-of-gauge cones or bobbins and the ones with broken filaments are easily eliminated. A black viewing box helps to insure that all fuzz and slubs are cut out of the yarn.

Because power net is stretched out on the machine, many imperfections are not detected during the actual knitting but are found after the cloth has been cut from the machine and allowed to relax for several hours.

(Some faults, such as small holes, may be caused by faulty timing of the machine.) Others might show up as horizontal lines at irregular intervals because the rubber yarn bends the guide bar and keeps the guide bar

← For more data, write this page number on Reader-Service card.

To manufacturers, converters, cutters, wholesalers and retailers:

LET'S GET THE FACTS STRAIGHT ABOUT MODERN RAYON

Many of the newer synthetic fibers which rocketed to fame in a flurry of claims, a few years ago, have recently suffered a good deal of debunking in trade and consumer circles.

This is hurtful to all of us in the apparel and home furnishings fields. It throws a smoke screen of doubt over the technical improvements and consumer benefits of *every* fiber—including rayon, the world's oldest, most used and *most improved* man-made fiber.

1957 Avisco rayon is not the rayon we all knew in 1945, in 1950—even in 1955. Intensified laboratory research has greatly improved it both in *structure* and in *use*.

It is stronger and vastly more versatile.

It can be kitten-soft in sterile surgical dressings or tiger-tough in tires beneath a truckload of crushed rock.

By itself, rayon can be silky, woolly, cottony or linen-like. In blends, it contributes its unique ability to take and hold gorgeous colors, absorb perspiration, and cut and drape and shape and stitch without seam slippage.

Improper *use* of rayon is swiftly disappearing. Remarkable new finishes, applied properly, add greatly to its superb washability, colorfastness, luster and comfort. The Avisco Integrity Program sets the standards for proper processing to meet end use requirements, and makes it worthwhile for everyone in the trade to observe these standards.

Many important cutters are adding the Avisco Integrity Tag to apparel and home furnishings made from qualified fabrics. Many retailers find that this added assurance of quality rayon sells more goods and *keeps* them sold.

AMERICAN VISCOSE CORPORATION, 350 Fifth Avenue, New York 1, New York

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Rugged, Compact, Versatile

Today's Most Modern

COMBINATION BEAM and PACKAGE

Dyeing Machines

Both out single and multiple kier arrangements permit the dyeing of from one to six beams or package carriers at the same time, in the same dye bath, with complete evenness and uniformity of shade. Capacities range from 250 to 2000 lbs. Years of research have resulted in a variety of manuel and automatic pressure flow controls to assure successful beam dyeing. All machines can be arranged for High Pressure, High Temperature dyeing. Write for illustrated folder.

GASTON COUNTY DYEING MACHINE CO.

Pioneers In Automatically Controlled Dyeing Machinery

STANLEY NORTH CAROLINA

Gaston County Dyeing Machine Co.
Terminal Bldg., 68 Hudson St.
Hoboken, N. J., G. Lindner, Mgr.

A. R. Breen
80 E. Jackson Blvd.
Chicago, Ill.

The Rudel Machinery Co., Ltd.
614 St. James St. W. Montreal
260 Fleet St. E., Toronto

from moving freely. Other faults in the form of vertical lines may be caused by needles out of line.

The most costly of all imperfections is the one known as corkscrews or pigtails caused by unbalanced rubber yarn. The unbalanced yarn can be caused by bad covering, slipping, or failure to maintain a constant humidity and temperature during the covering operation.

About 98% of power net is plain and is produced on machines with four guide bars, but some fabrics are made with fancy designs. These fabrics are made with 5 to 10 guide bars. The machine speed is often reduced up to 50% to produce these designs, and over 2,000 links are required for an eight-bar fabric.

This fabric loses some of its stretch because the designs are made by laying the yarn at the back of the needles. Power net can be made plain and printed with designs in several colors. This fabric loses no stretch and requires no special setup. Customers can then be provided with their own exclusive designs.

FLUORESCENT WHITE DYES

CONTINUED FROM PAGE 172

With the ultraviolet light source alone, 5% variations in dye content can be detected. By filtering the light source and projecting the reflected fluorescence into the fluorimeter, differences as low as 2% can be noted.

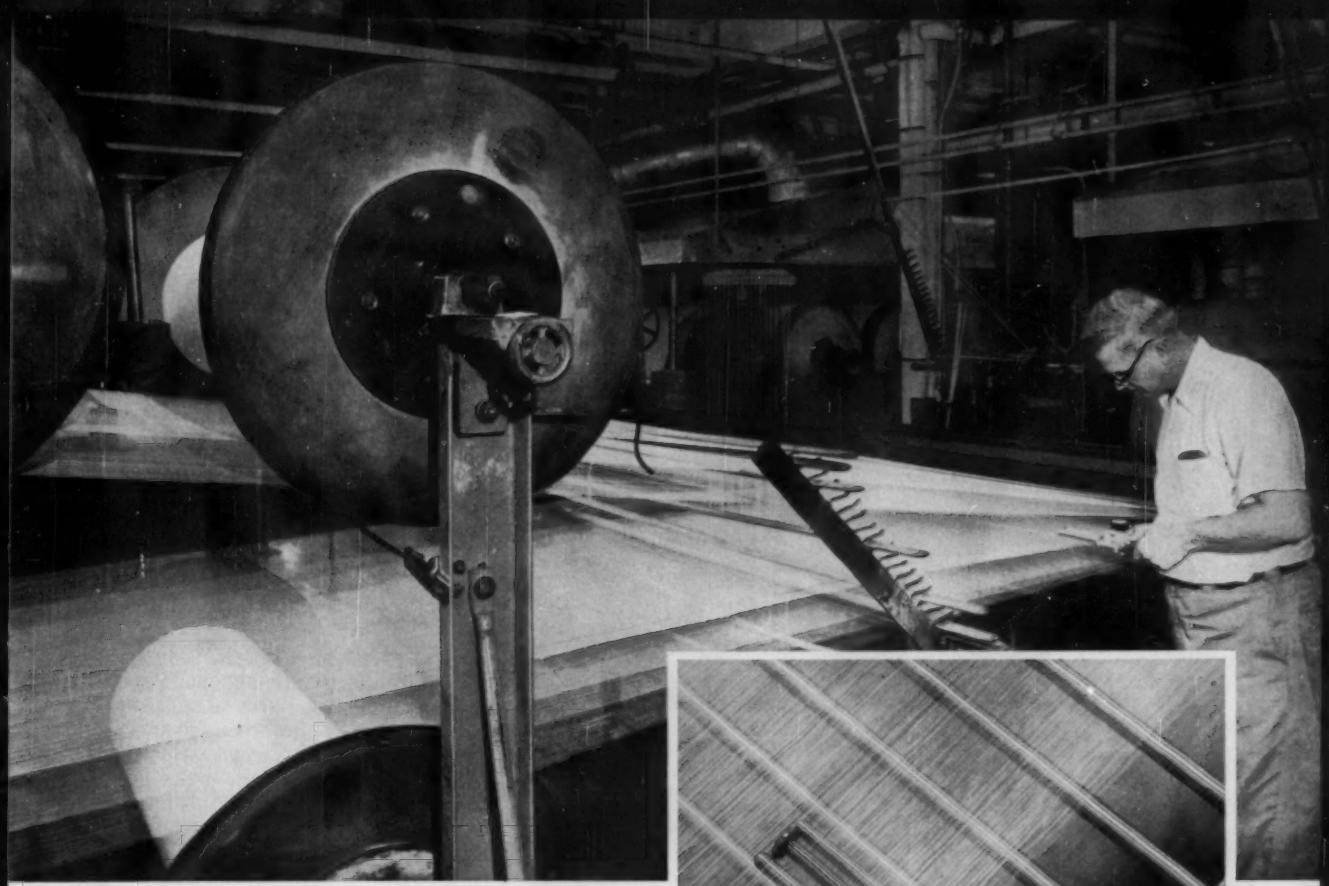
When it is considered that in mill practice fluorescent white dyes are present in amounts of the order of 0.1%, evaluation by means of both instruments described is satisfactory.

Which Shade of Whiteness?

Fluorescent white dyes differ in that some produce a reddish shade of blue light and others produce a greenish shade. The choice of which one to use is arbitrary, particularly when a mill starts to use these products. As time goes on, there may be a need to swing from one type to the other and here the evaluation method described may give confusing results.

Reddish-shade brightness may give whiter effects under one type of ultraviolet light than they do through another. The fluorimeter may show the reddish-shade whitener to be superior to a greenish-shade whitener, or vice versa.

So for practical purposes, visual comparison in daylight remains the best all-around method of checking



NEW KIDDE SLASHER TENSOMETER ends uneven yarn sheet tension in cotton system slashing

The new KIDDE Slasher Tensometer prevents a principal cause of streaky fabric in weaving mills that slash their yarn on the cotton system. No matter how many creel beams you use to make up your warp, you can now be sure that the tension in all yarn sheets is the same. With the KIDDE Slasher Tensometer it is easy to compare the tensions in the yarn sheets making up the sley and adjust the beam let-offs to even out any differences. It eliminates the all too fallible human element in estimating tensions from different beams in the same set.

Developed in cooperation with the Textile Research Laboratory of American Viscose Corporation, the KIDDE Slasher Tensometer will provide quality insurance in any slasher room. For prices and complete information, write today to: Dept. STA2

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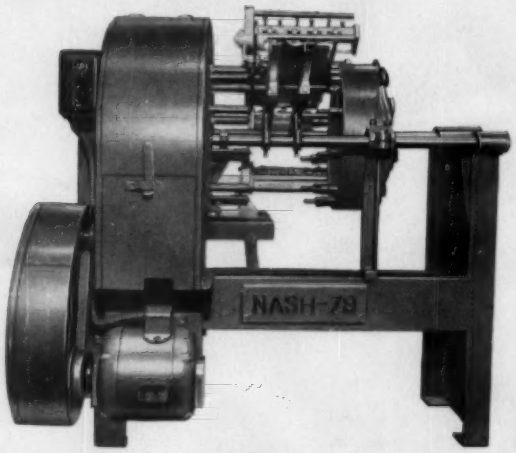
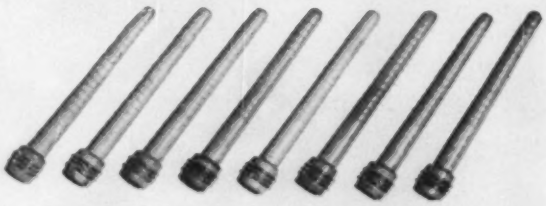
NASH

"Number Seventy-Nine"





The Only Machine That Cleans And Polishes Quills AUTOMATICALLY

Illustrated Bulletin Upon Request

ROUGH quills tear delicate filaments —increase production costs. Prevent broken picks with a NASH No. 79 Machine that polishes quills *automatically*. Standard equipment in leading textile mill operations.

J. M. NASH *Company*

2364 N. 30th Street • Milwaukee 10, Wisconsin

these products, in spite of the lack of precision.

The dye manufacturers have developed a method using the fluorimeter with correction factors that compare the whitening effect of various fluorescent white dyes very effectively. Work is going on to modify the fluorimeter so that such comparisons can be made without the use of correction factors.

POINTERS FOR SUPERVISORS

CONTINUED FROM PAGE 157

Understanding of principles also helps. Where principles are not understood and the similarities between the two tasks are only superficial, developed skill in the old task seriously interferes with the learning of the new task.

4. Common sense may tell us to stress accuracy first and build speed upon accuracy. ("Get it right; then gain speed.") But there is growing support for primary emphasis on speed at the beginning. Unwarranted insistence at first upon accuracy and quality appears to result at times in extra positionings, stops, motions, etc., that add up to an inefficient job method that is hard to break away from.

5. Common sense may tell us that the trainee will make faster progress if permitted to start with a method that comes easy to him. Yet most foremen are familiar with long-service employees who are handicapped by inefficient job methods that came easy to them at the start but are now virtually impossible to change.

There is, of course, no complete and ready-made answer for any specific training problem. What works in one case may not work in another. But common sense is neither our only nor our best guide. There is much more we can learn about training that will help us solve our own specific problems.

ROUND TABLE

CONTINUED FROM PAGE 10

new-car production contained approximately 18 oz. of cotton to the yard, whereas today there is in the neighborhood of 12 oz. of cotton used per yard. This is a reduction of one-third.

The consumption of rayon, exclusive of that supplied by Courtaulds, was confined primarily to the high-priced cars, in a rayon-and-cotton-combination surface fabric. It was a 10-oz. outside-surface fabric made with

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How many ways do you know to blend Cotton and Nylon?

Can you calculate the hardness of yarn twist? How about a fast way to set dobbies? What's a source of supply for chelating agents? Who makes J-boxes? What a business!

Too bad you wern't born twins, the questions that keep coming up. Well, we've got good news for you. Mentally you can be two men—so long as you always remember to keep your FACT FILE at your elbow. It will save your time, save you trouble . . . who knows, someday it might even save your reputation. As we travel around, we see more and more mill men using it, some such enthusiastic fans that they say, "Steal my wife, but not my FACT FILE."

No, it's not three tons of book—but a single, compact volume you get with your regular TEXTILE WORLD subscription. It's so easy to handle, indexed right on the cover so you find what you're looking for fast. It packs a million miles of answers into only 354 pages. It's been researched by the best brains in the business . . . put together by the field's top publisher. And it has been checked and rechecked year after year so that TEXTILE WORLD's editors are certain it contains clear, reliable answers to the questions that come up most. So, you, too, get the FACT FILE habit. It pays!

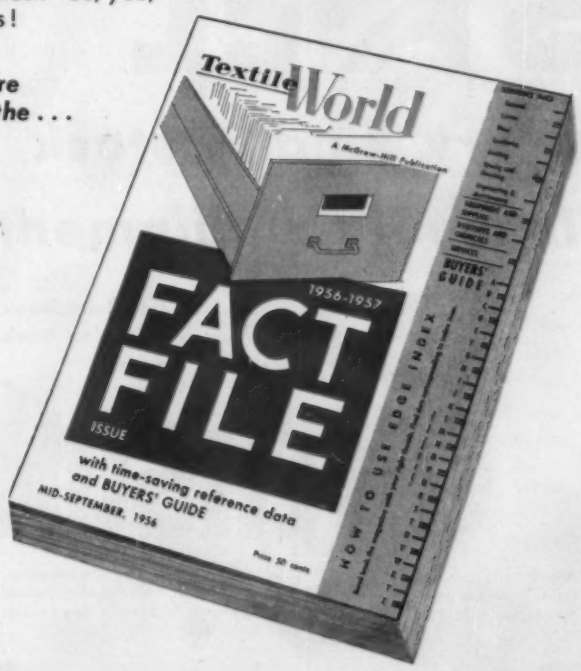
Don't fret—chances are you'll find your answer in the . . .

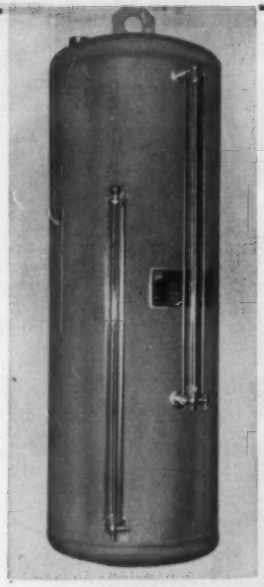
A SECOND SET OF BRAINS

A walking encyclopedia of reference data . . . *General, Cotton, Wool, Synthetics, Knitting, Dyeing and Finishing, Engineering and Maintenance.* Loaded with worth-their-weight-in-gold charts, tables, formulae.

A complete, classified, easy-to-find-it Buyers' Guide when you have to know, and fast . . . who makes and sells *Machinery and Equipment, Chemicals, Dyestuffs, Supplies, all sorts of Services.* In fact, well over 2,600 items listed!

An all-in-one-place consolidated catalog of data-packed, highly informative material from the leading manufacturers in the field—*covering every variety of product and service.*





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ALUMINUM TANKS FOR PEROXIDE STORAGE

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We invite your inquiries for tanks or vessels for handling hydrogen peroxide or other textile liquids — complete with fittings, in aluminum, stainless or carbon steel, monel or other alloys. Serving the textile industry since 1854.

Write for *Tank Talks*.

R. D. COLE MANUFACTURING CO. COLE NEWNAN, GEORGIA

R. D. COLE MANUFACTURING CO.
NEWNAN, GEORGIA

60% rayon and 40% cotton. Where this fabric has been replaced, you might say there has been no loss or gain in the weight of cotton used but rather the elimination of the rayon.

With regards to Courtaulds solution-dyed-rayon top fabric, I believe the consumption has been pretty constant over the past two or three years. The primary user is Ford; and color is confined to black supplemented by limited yardages of green, blue, and tan. Whether this use amounts to 5% or more of the total top fabric consumed would be questionable.

The replacement field still follows the pattern of the fabrics used prior to the adoption of surface coating; and volume is heavily cotton, as it has always been.

To sum up, basically it would seem that there has been a drop in the poundage of cotton absorbed by this end use, but there has been a far greater drop in the use of synthetic fibers of all types. Courtaulds solution-dyed fibers could readily have suffered least; but if so, the victory really is for the vinyl field rather than any fiber itself.

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Haartz Auto Fabric Co.
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Every kind in stock

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EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 170

Loom Switch

A lint-tight loom switch that can be removed easily for servicing is announced by General Electric Co., Schenectady, N. Y. A cork-neoprene gasket mounted on a Bakelite plate inside the cover keeps out lint and dust.

The switch may be turned in the enclosure for easy wiring to the line terminal from either the top or bottom. A grounding plate is under the switch on the inside back cover. The switch may be mounted on the loom, wall, or a pedestal for maximum space saving and operating convenience.

Circle T-28 on Reader-Service Card

Top-Roll Tool

A tool that permits easy removal and mounting of cots on top rolls has been announced by Saco-Lowell Shops, 60 Batterymarch St., Boston 10, Mass. The tool can be used on cap-bar, overarm-suspension, and worsted rolls.

Circle T-29 on Reader-Service Card

CONTINUED ON PAGE 228

QUALITY WORKMANSHIP

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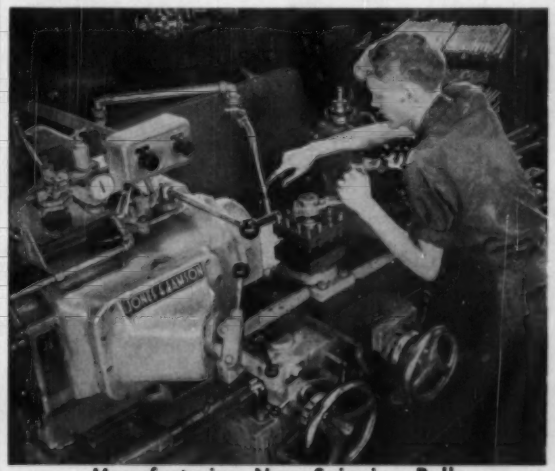
PROMPT SERVICE

Our policy of two to three weeks delivery on all Roller, Flyer and Spindle repairs, is our Guaranteed Customer Service.



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A modern plant, fine equipment, experienced personnel and efficient management make it possible for us to guarantee complete satisfaction on:

Repairs to all types of Rolls and Spindles. Also, new Steel Rolls, Card Room Spindles, Fluted Rolls, Lifter Rods, Gears and Trumpets.

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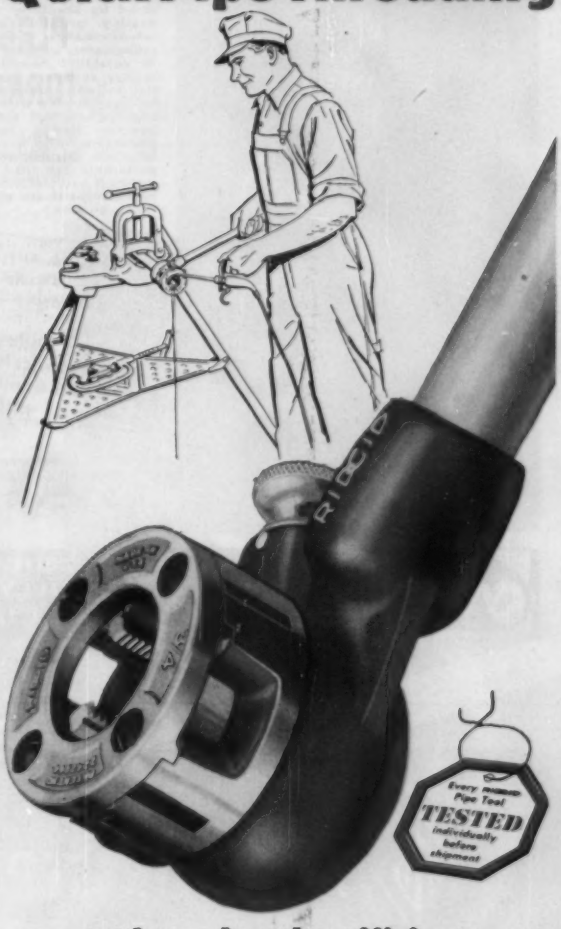

...these handy efficient RIDGID Drop-Head Dies

A die head for each size, ⅛" to 2"—they snap into ratchet ring from either side, can't fall out—reverse for close threads. Tough malleable and steel heads, famous RIDGID long-wear dies—conduit or special dies available. OOR and OR, ⅛" to 1"; 111R and 11R, ⅛" to 1¼"; 12R, ⅛" to 2". Bargains in fast easy threading—at your Supply House.

The Ridge Tool Company • Elyria, Ohio, U. S. A.

RIDGID
Work-Saver Pipe Tools

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Cuts Production Cost
on Mens', Womens' Sweaters

● High-speed, trouble-free operation assured by simplicity of design, sound engineering, precision unit-construction of all sub-assemblies. Wide operating range, new refinements, increase production up to 20%
● Versatile! Handles synthetics, worsteds, zephyr, cashmere yarns, etc. Stitch construction includes interlock, rib, jersey which can be incorporated with tuck and welt stitches and (on interlock fabric) fancy stitches embodying stripes, colored checks, blister, grenadine; also pleat effects and jersey interlock. Our big backlog of orders proves preference for OGA and OTA equipment—makes it necessary to place your orders several months ahead of wanted delivery date! Write at once!

ORDNANCE machines are available in 18", 20", 22" and 24" with 8 feeds; in 30" and 32" with 12 feeds.
To meet todays demand for JERSEY fabrics let us demonstrate our OTSA model, embodying many new exclusive features!

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EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 226

Push-Button Units

Two additions to its line of oiltight push buttons are being produced by Cutler-Hammer, Inc., 562 N. 12th St., Milwaukee 1, Wis.

The Roto-Push unit combines the functions of a single-button station with the advantages of a two- or three-position selector switch in one unit.

The Pres-Test indicating light provides a way to check indicating lights without disturbing the control circuit.

Circle T-30 on Reader-Service Card

Belt Lacer

A vise lacer designed for belt hooks used to lace belts from 0.060 to 0.156 in. thick is being produced by Clipper Belt Lacer Co., 974 Front Ave., N.W., Grand Rapids 2, Mich. The lacer holds a full 50-hook card.

Circle T-31 on Reader-Service Card

Unit To Destroy Lamps

A unit to destroy fluorescent lamps is being produced by Laduby Co., Inc., Boston Post Rd., Bradford, Conn. The small mechanism is mounted against the inside wall of a building. The used fluorescent tube is inserted inside a small cylinder and is then broken inside a water chamber. The broken glass is deposited directly inside a rubbish barrel outside the building; the machine disposes of 3,000 to 4,000 lamps a day without danger of glass dust or obnoxious odor.

Circle T-32 on Reader-Service Card

CONTINUED ON PAGE 232

Economy is compatible with the finest dyeings if Neovadine AN is used as the dyeing assistant . . .

Expensive equipment, the finest dyes and skills mean little if the dyeings are uneven. When dyeing or redyeing in neutral or acid bath, levelness and penetration can be assured with this unique dyeing auxiliary. Neovadine AN is new enough to be alone in its field and old enough to have earned the endorsement of skilled dyers. For full details, contact . . .

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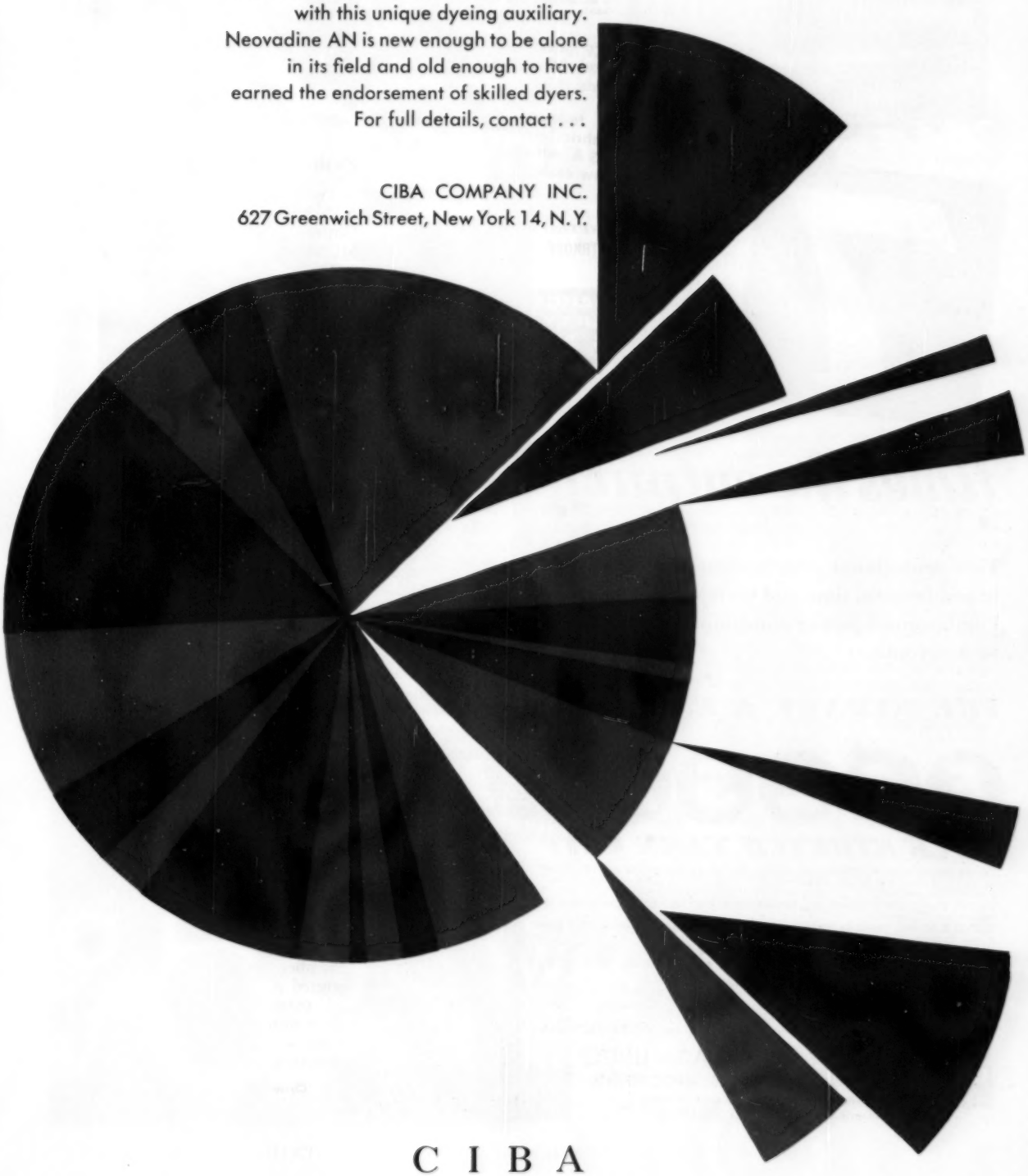

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times the output!

This sensational development for economy in production, time and costs means just that. Furthermore power consumption is reduced to a seventh.

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BULK STRETCH YARN UNIT

for fitting on new or existing machines, in one process surpasses the many other processes used in the manufacture of bulk stretch yarn, giving at least 7 times the output.

Overall Power Consumption per Machine is a fraction of that consumed by the normal Uptwister.

TORQUE stretch yarns in quantity, high speed false-twist method with precision quality control.

Production on 2 decks as in normal uptwisting.

Complete heat-setting gives maximum bulk and stretch.

Results equal to original multi-stage process.

Suitable for Processing NYLON, "TERYLENE", PERLON, TRIACETATE.

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Does chelation actually represent a new kind of chemistry? Are the possibilities as exciting as many seem to think? This series endeavors to answer these—and many other—pertinent questions on this fascinating subject. It is hoped chemists, engineers and purchasing agents alike will find these answers helpful. Now on to . . .

DOW

The Chemistry of Chelation: Part II

Versene and Versenol Series · Descriptions and Uses
A measure of Value · A Suggestion

To review in capsule form: Part I introduced chelation, offered examples of typical chemical reactions, applications, and discussed future possibilities. You will remember that a chelating agent is defined as a chemical which surrounds metallic ions with a multiple-ring structure that keeps the metal chemically inactive and holds it in solution. The applications in industry are many—and new ones are being found almost daily. That, of course, brings us to another consideration: different chelating agents for different uses.

VERSENE® AND VERSENOL®

Chelating agents are commercially available from Dow as 15 different products—all based on aminocarboxylic acid derivatives. Among these, wide spectrum performance is shown by two series of products. The Versene series of products (Versene® 67, Versene 100, Versene Powder, Versene Beads, Versene 9 and Versene Acid) is based on EDTA* and the sodium salts of this material. The Versenol series (Versenol® 120, Versenol Powder and Versenol Beads) consists of various physical forms of Na_3 HEDTA**. The Versene series, except for Fe+++ in the alkaline pH range, is generally the stronger series of the two (more completely chelates the last traces of metal). The Versenol series is notably stronger for Fe+++ in the mildly alkaline pH range and is usually cheaper on a performance basis if the consumer can tolerate the weaker chelate structure. Versene is the strongest, most stable commercially available chelating agent. It is the one with the greatest number of successful applications.

DESCRIPTIONS AND USES

Here are three Dow chelating agents together with their descriptions and uses:

Versene 100 is a concentrated aqueous solution of a technical grade of the tetrasodium salt of EDTA . . . widely used in textile processing, detergent formulations and metal cleaning.

Versene Acid is a dry form of EDTA technical. It is used in many operations as a raw material for the preparation of various derivatives, such as metal chelates, salts (K, NH_4), esters and many others.

*Ethylenediaminetetra acetic acid

**Trisodium salt of N-hydroxyethylethylenediaminetriacetic acid

Versenol 120 is a concentrated aqueous solution of a technical grade of Na_3 HEDTA. It is also very valuable to detergent, textile and metal-cleaning processes.

Naturally these three specific agents are not the answer to *every* problem. That's the reason for the many other Versene products, to be discussed in Part III.

A MEASURE OF VALUE

A measure of the broad performance capacity of a chelating agent can be obtained from its *chelation value*—determined on a reference metal. Calcium is used as the reference metal under the standard test proceedure accepted by the industry. Dow prefers this "performance basis". It specifies more clearly what chelating agents *actually accomplish* than such terms as "% solids" and "% active". Consequently, the "100" in Versene 100 means that one gram of this product will chelate 100 milligrams of calcium carbonate in accordance with the standard test procedure. By the same token, one gram of Versene 67 will chelate 67 milligrams, and so on.

A SUGGESTION

Two closing thoughts: Dow wants to help in any way possible to further develop the applications for chelation. Also important, Dow would like to hear from *you*—your thoughts, reactions, suggestions. Please inquire about any problems or ideas you may have. Information or actual technical assistance will be forthcoming promptly. Write, on your company letterhead, to Technical Service and Development, Dept. SC 912K-2. THE DOW CHEMICAL COMPANY, Midland, Michigan.

ADDITIONAL TOPICS IN THIS SERIES

PART III — Specific chelating agents for specific applications (agent for iron control depends on pH—Versene Fe-3 Specific® for iron and transition metals on the alkaline side, Versene T® for iron in presence of free caustic—other solutions to special problems).

PART IV — Applications in specific industries (formulation of alkaline cleansers—stabilization of hydrogen peroxide and Kier boiling in textile processing—uniform control of trace metal catalysts in polymerization of synthetic rubber—other industrial applications).

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no spreading...
no hand cutting
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AUTOMATIC
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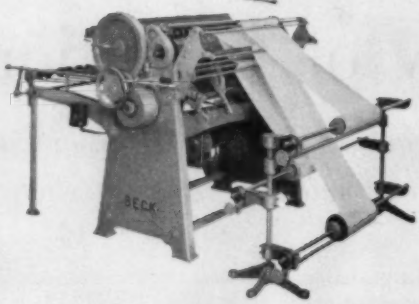

Save time—automatically. You can with this modern versatile machine. It cuts just about any textile or synthetic from rolls to sheets—accurately, speedily and with greatly reduced waste. Let's show *you* how inexpensive it is to own and operate a Beck Automatic Roll Sheet Cutter. A brief letter from you is all it takes. Write.

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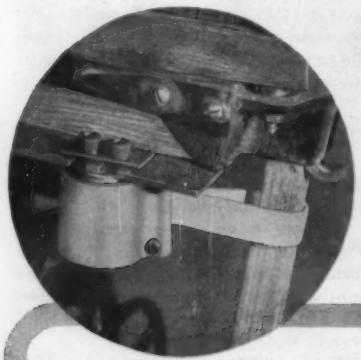
50 CHURCH ROAD, KING OF PRUSSIA, PA.



The Dodenhoff Hydraulic Checkmaster*

Increases Loom Speeds 10%
Improves Wearing Quality
Cuts Weavers and Loom Fixers Work Load

The Dodenhoff Checkmaster provides a smooth, positive, constant and accurate check of the shuttle on every pick—in both directions without constant adjustments to box and check straps. It stops kinky fillings and produces even selvage. Gives top performance on the first pick Monday morning.

You'll get higher loom speeds and better quality weaving at lower cost with the Dodenhoff Hydraulic Checkmaster. Order a section today.

*Patented

W. D. DODENHOFF CO.
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GREENVILLE, SOUTH CAROLINA

Industrial Floors

Prefabricated industrial floors and anchor plates are available from Stelcon Industrial Floors, Inc., 165 Broadway, New York 6, N. Y. The prefabricated slabs are for heavy-duty use and combine doubly reinforced subfloor and wearing surface; at the same time they are mobile. The steel anchor plates can be installed easily.

Circle T-33 on Reader-Service Card

Magnetic-Conveyor Parts

Magnetic castings attached to your conveyor belts convert them to a magnetic conveyor or elevator system. The Magna-Rail units are manufactured by Eriez Mfg. Co., Erie 6, Pa.

Circle T-34 on Reader-Service Card

Interlock Switch

A small-size interlock switch to cut off power when a service door is opened is announced by Micro Switch Div., Minneapolis-Honeywell Regulator Co., Freeport, Ill.

Circle T-35 on Reader-Service Card

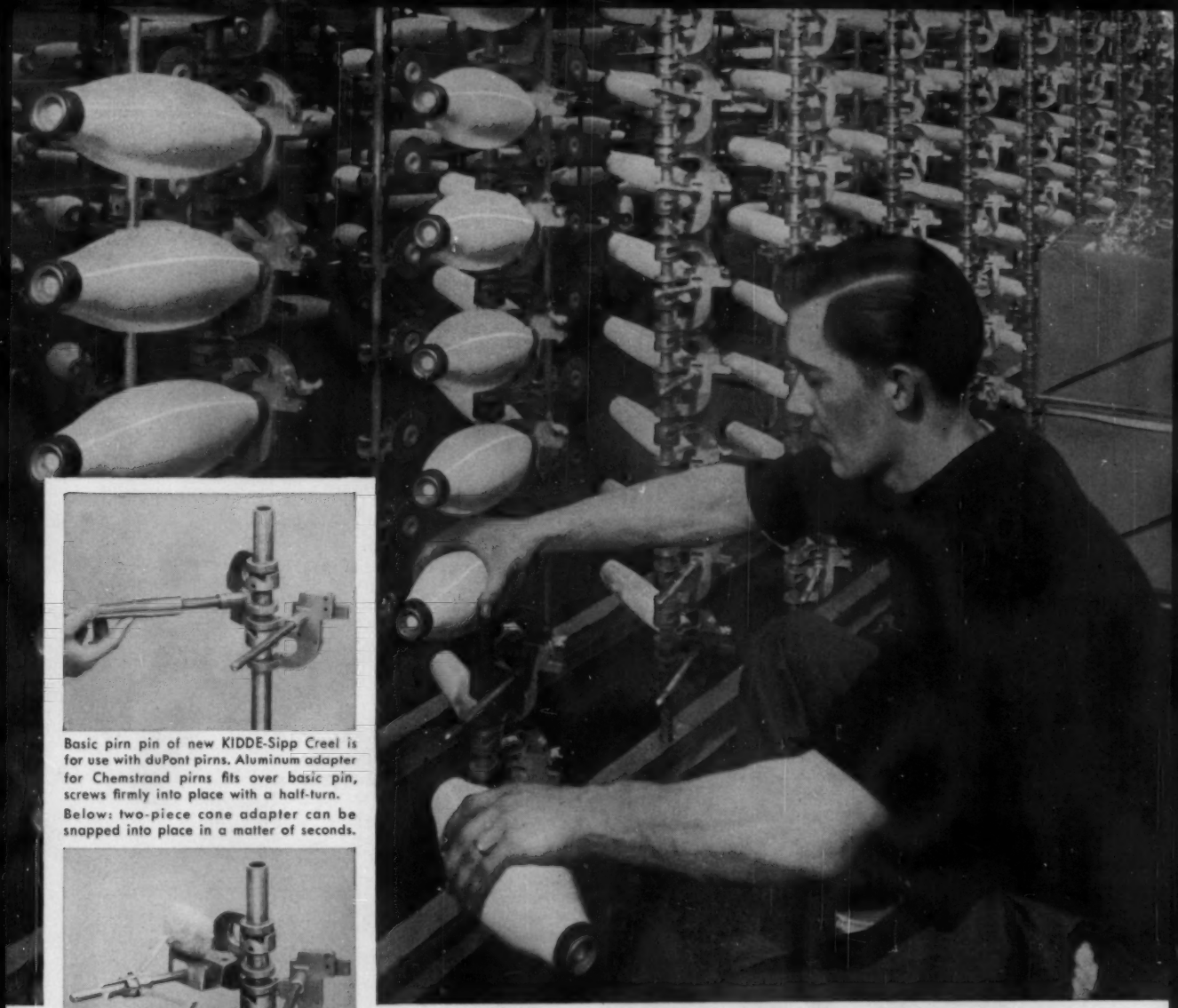
Movable Walls

Permanent or movable walls that can be erected quickly and easily from adjustable metal framing are being made by Unistrut Products Co., 1013 Washington Blvd., Chicago, Ill. The frames are made of steel channel and are designed to take any standard paneling material, such as plywood, hardwood, expanded metal, and glass, from $\frac{1}{8}$ to $\frac{1}{2}$ in. thick.

Circle T-36 on Reader-Service Card

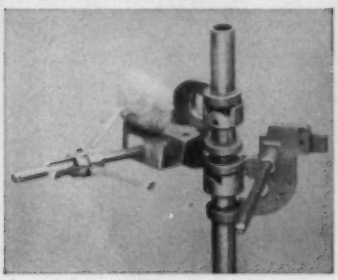
Water-Purity Controller

A controller that maintains water purity has been developed by Barnstead Still & Sterilizer Co., 2 Lanesville Terrace, Forest Hills, Boston 31, Mass. Attached to a water still, the unit operates on the conductivity principle and can be set to detect minute amounts of impurities ranging from 0 to 15 parts per million in water being distilled. Impure water is discharged to waste to avoid contamination of water already in storage. When the condition has been cor-



Basic pirn pin of new KIDDE-Sipp Creel is for use with duPont pirns. Aluminum adapter for Chemstrand pirns fits over basic pin, screws firmly into place with a half-turn.

Below: two-piece cone adapter can be snapped into place in a matter of seconds.



Starting Point for Good Warps

NEW, IMPROVED KIDDE-SIPP CREEL

To help you make better warps . . . and to make your warping more versatile, KIDDE-Sipp creels have been completely redesigned. Package holder arms are much stronger. Adapters are more rigid. Even the heaviest packages will not sag out of alignment.

Basic creels are fitted with pirn holders for the 12" duPont pirn. Adapters for Chemstrand pirns, or for cones, spools and tubes can be added and fastened securely. Change-overs are easy and quick.

The new creels have plated pins with aluminum arms and adapters. Painting is eliminated . . . no rust can get on your yarn.

KIDDE-Sipp creels are available with inside, outside or vertical yarn delivery . . . with washer, post, or pulley tensions and with Kidde tension compensators. All are available with stop motions and with annunciator lights if desired. Write for further information to . . .

TRICOT AND RASCHEL MACHINES • TRICOT WARPERS • HORIZONTAL WARPERS
BEAMERS • CREELS • SLASHERS • WINDER-REDRAWS • TENSOMETERS

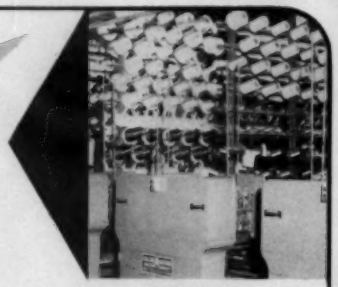
Kidde

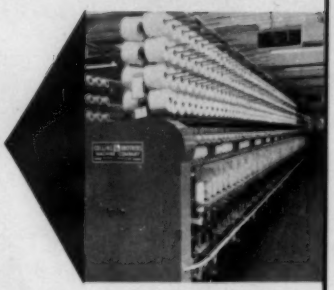
MANUFACTURING CO., INC. — 42 FARRAND STREET — BLOOMFIELD, NEW JERSEY

SOUTHERN OFFICE — 267 W. MAIN ST., GASTONIA, N. C.

The word KIDDE is the trademark of Walter Kidde & Company, Inc., and its affiliated companies.

There is a Collins Twister for every Ply Yarn Construction





Collins produces the most complete line of twisters on the market . . . Novelty, Ply, Big Ring, Beam, Cabling, Wet, Trap, Rayon, Paper, Glass, Single or Dual Drive, and Special Twister Take-ups.

Since 1866 Collins Twisters have been the finest in the field. Today's line offers you many valuable exclusive features. Let us give you full information on the machines you need.

COLLINS BROTHERS MACHINE COMPANY

647 Roosevelt Ave., Pawtucket, R. I. • Charlotte • Chicago
Hugh Williams & Co., 27 Wellington St. E., Toronto 1, Canada

picture from plant of LUISA SPAGNOLI Perugia, Italy —one of our foreign users

TOMPKINS

over 110 years' proven performance—
LATCH AND SPRING NEEDLE KNITTING MACHINES

"mostest runnin' knittin' machines in the plant!"

The Head Knitter of an U. S. mill made this brief yet factual statement. Knitters in the know are quick to substantiate the comment, with good reason. The Tompkins record stands undisputed . . . over 110 years of proven money-makers to the Knitting Industry.

We see some Tompkins machines running that are 70 years old — still going strong despite their outdoted performance in comparison with new model Tompkins machines. It's like seeing an old Model T alongside a new '56 Ford! Let us help you put in a modernization plan.

— *ESTABLISHED 1864* —

TOMPKINS BROS. CO.

623 Oneida St. • Syracuse 4, N. Y.

TOMPKINS
MODERN SPRING NEEDLE KNITTING MACHINE

with changeable feeds to make

• Fleece Coatings • Sweat Shirts
• Jersey • Terry • Patterns
• Stripes • Lastex Inlay

—all on the same machine!

rected, the controller automatically diverts the pure water to storage.

Circle T-37 on Reader-Service Card

Valve

A renewable seat-ring gate valve that permits replacement of seat rings in less than 10 mins. under normal conditions is available from Fairbanks Co., 393 Lafayette St., New York 3, N. Y. All you need to adjust the valve is a screwdriver; and the valve body remains installed in the line while you work.

Circle T-38 on Reader-Service Card

Atomizing Nozzle

For pneumatic-atomizing nozzle applications where little space is available, Spraying Systems Co., 3201 Randolph St., Bellwood, Ill., offers a nozzle only ½ in. thick and about the diameter of a half-dollar.

Circle T-39 on Reader-Service Card

Quiet Dust Collector

An extra-quiet cabinet-type dust collector is being made by Torit Mfg. Co., St. Paul, Minn. Five rectangular models are available and are said to eliminate approximately 80% of noise without restricting air flow.

Circle T-40 on Reader-Service Card

Diaphragm Valve

A diaphragm valve that has no pockets to trap sludge is announced by Grinnell Co., Inc., Providence, R. I. The valve is for handling fibrous slurries, viscous materials, solids in suspension, sewage, and corrosive chemicals.

Circle T-41 on Reader-Service Card

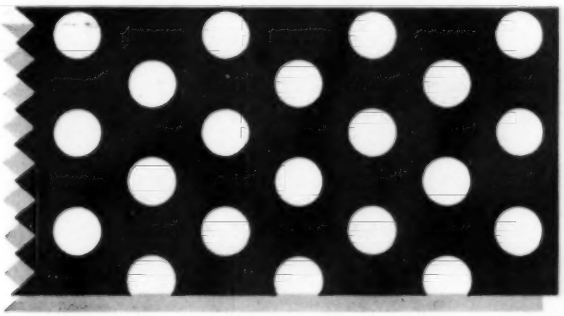
Bench Oven

An oven that can be used for baking enamels or lacquer, dehydrating, or preheating small parts has been marketed by Grieve-Hendry Co., 1401-17 W. Carroll Ave., Chicago 7, Ill. The working space is 36x36x36 ins., and the maximum working temperature is 350° F. A fan maintains even temperature, and the oven is equipped with a timer and an automatic switch that shuts off the fan and heater elements when the door is opened.

Circle T-42 on Reader-Service Card

CONTINUED ON PAGE 236

use NAPHTHOL DYES by gdc



for deep, brilliant shades — all around color-fastness — high productivity at low cost

Bright reds and yellows, deep rich navies, browns, wines and blacks either too difficult or expensive to achieve with other dyes are simply and inexpensively produced with GDC Naphthols in cotton and rayon, in pad, jig or continuous systems. Acetate, Dacron* and nylon may be dyed by special processes.

Naphthol colors are fast to washing, light, chlorine, alkali and cross-dyeing. Many Naphthols are used as ground colors for discharge printing where wash- and light-fastness are required.

A complete range of highly soluble Naphthol Powders are available. However, for greater economy in high-speed, large-volume operations the prepared liquid Naphtholate AS Solution brands are generally preferred.

The Fast Color Salts and Bases used for development are reliably uniform from batch to batch and most are nondusting for cleaner handling.

Our Technical Service Laboratories are ready to advise you on how to utilize Naphthol dyes in your particular operation.

*Polyester fiber of E. I. du Pont de Nemours & Co. (Inc.)

From Research to Reality

gdc gaf

GENERAL DYESTUFF COMPANY

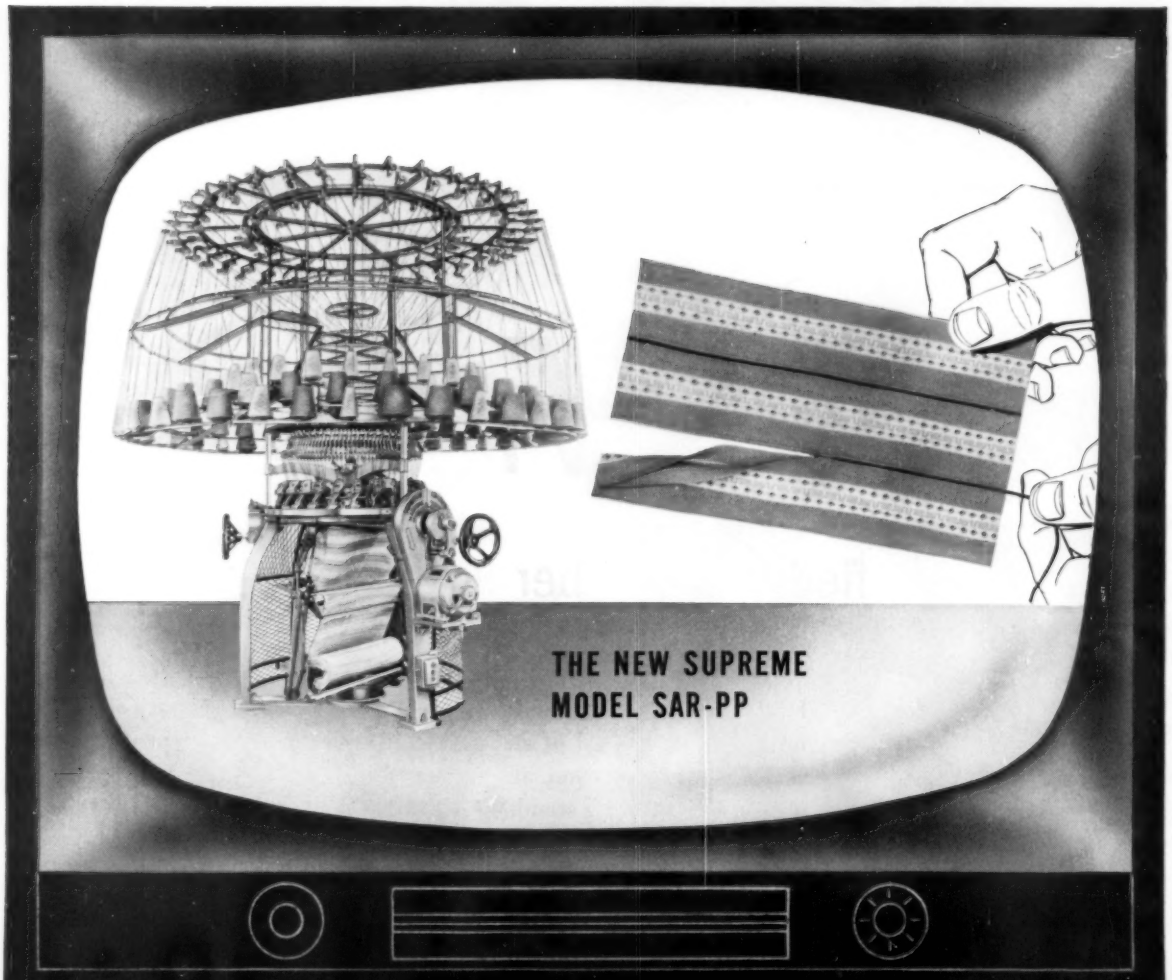
A SALES DIVISION OF

GENERAL ANILINE & FILM CORPORATION

435 HUDSON STREET • NEW YORK 14, NEW YORK

BOSTON • CHARLOTTE • CHATTANOOGA • CHICAGO • LOS ANGELES • NEW YORK • PHILADELPHIA • PORTLAND, ORE. • PROVIDENCE • SAN FRANCISCO IN CANADA: CHEMICAL DEVELOPMENTS OF CANADA, LTD., MONTREAL

Naphthol Dyes manufactured by the General Aniline and Film Corporation are sold outside the United States under the trademark "Fenaphtol."



SUPREME Presents A Knitting "SPECTACULAR"

AN ENTIRELY NEW – MULTIPLE FEED – HIGH SPEED – VERSATILE AUTOMATIC STRIPE AND PATTERN RIB KNITTER

● Opens new fields for fancy rib fabrics by virtue of its ability to knit a tremendous variety of high-styled rib cloth at unprecedented production rates *–to 28 yards per hour.*

● Knits automatic variable striped rib–with or without patterned inserts placed where desired–on 1x1 or swiss rib–produces all over patterns–textured effects such as "blister stitches"–fabric with or without draw thread separations (easily removed for uniform selvedge) spaced as desired –scalloped edge fabric–cardigan–a myriad of rib fabrics with new designs and style quality.

● Standard 30" diameter available through 14 needles per inch–contains 24 feeds–with three-position pattern wheels on each cylinder feed–individually and automatically controlled four-color striping boxes (which remain in knitting action at all times) on alternate feeds*–automatic knit, tuck and welt control on all cylinder and dial feeds.

● Incorporates the most advanced engineering design for maximum efficiency–New Seam Knitting Device–(Pat. Applied For) which permits knitting of seam on all feeds without slightest difficulty–stationary "tiered" yarn stand (Pat.) plus all mill proven features of Supreme's SAAF–World's most popular jersey striper.

For further details or a demonstration of the New SAR-PP, contact Supreme today.

SUPREME
KNITTING MACHINE CO., INC.
94-02 104th STREET, OZONE PARK 16, N. Y.
Southern Representative and Showroom:
The Malluck Co., 914 East 4th Street, Charlotte, N. C.

*Available on all twenty-four feeds upon request

SK-179

Be Sure to Visit SUPREME Booth #451, at the Knitting Arts Exhibition, Atlantic City, April 29th-May 3rd.

Looking for a better fiber for industrial use?

Check Eastman VEREL

the new modified acrylic fiber

For a fiber to be successful in work clothes and industrial fabrics, it needs a special kind of stamina. Check over some of the outstanding characteristics of VEREL and then decide how this new modified acrylic meets your exacting standards.

Resistance to acids and caustics. VEREL has excellent resistance to a wide range of acids and alkalis. In actual use in a chemical plant it is now demonstrating its ability to prolong substantially the life of work garments.

Especially good fire resistance. VEREL is slow to burn and will not support combustion. Even in brushed or pile-type fabrics it won't flash. What's more, the fire-resistance of VEREL lasts for the life of the fabric. And because it eliminates the need for heavy, fire-resistant finishes, VEREL permits the use of lighter-weight fabrics.

Ease of cleaning. Properly constructed garments of VEREL have the ability to withstand continued home or commercial laundering without shrinkage or loss of wearer comfort.

Comfort and neatness of appearance. VEREL, because of its favorable moisture regain, feels especially soft and luxurious. Its good wrinkle resistance and press retention both contribute to a well-groomed look in work clothes and uniforms.

These and other useful characteristics make VEREL an ideal candidate for such uses as paint rollers, drop cloths, fender cloths, institutional draperies, blankets, and tent fabrics. Ease of processing and dyeing and a talent for blending well with other fibers also make VEREL a fiber you should watch. For more complete information, get in touch with your nearest Eastman sales representative. Ask him for the full story on VEREL, *the fiber that fits the job.*

EASTMAN CHEMICAL PRODUCTS, INC., SUBSIDIARY OF EASTMAN KODAK COMPANY, 260 MADISON AVENUE, NEW YORK 16, N. Y.

For more data, write this page number on Reader-Service card. →

Small Size—

Big Capacity

Universal Steam Trap

Exceptional Capacity

This small, light-weight, inexpensive bucket type Unitrap* has a discharge capacity of 1000 lbs. per hour at 125 lbs. pressure. This is more than adequate for most textile mill applications, such as slashers, dry cans, calenders, printing and coating machines. It assures fast warm up.

Completely Universal

Like larger Unitrap Models the ½" size Model 70T, shown here, operates on a balanced pressure principle through the unique function of its new and exclusive Dual-Valve, which automatically compensates for differential pressures through a range of 0 to 125 lbs. PSI. It adjusts to changes in steam pressures and condensate rates without requiring changes or adjustments of orifice or valve.

Reduced Maintenance and Wear

In-line maintenance, stainless steel working parts, and automatic universal pressure range eliminate most of the usual maintenance and replacement costs. Large orifices and positive sealing of the valve reduce wear and wire drawing to a new low.

*Reg. Trade Name

Eliminates "Guess Work"

The universal range of the Unitrap line takes the "guess work" and engineering out of ordering steam traps; as well as adjusting to pressure application for peak machine efficiency.

for full information
Write for Bulletin 825W

Perfecting Service Co.

Office and Factory

332 Atando Ave., Charlotte, N. C.

Baltimore • Camden, N. J. • Chicago
Cleveland • Los Angeles • New York
Providence • Montreal • Toronto

Out Goes
LINT · FLY TRASH
from your
SPINNING FRAMES and ROVING FRAMES
Quickly • Economically

by using

M·B AMOSKEAG PNEUMATIC ROLL PICKER

MODEL A-VT-A

A pneumatic tool especially designed for the specific purpose of REMOVING LINT and FLY from the top rolls of Spinning Frames and Roving Frames. Saves time and does a better job by substituting mechanical cleaning instead of laborious hand methods. Air deflector prevents fly and lint being blown into yarn when spinning. Adjustable valve permits any desired spindle speed.

Write for Literature

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46 VICTOR AVE., Div. 16
DETROIT 3, MICHIGAN

SOUTHERN WEAVING CO.

GREENVILLE S. C.

Manufacturers

STRAPPINGS
SPINNING TAPES
LEADER WEBS
SAFETY BELTING

COTTON and NYLON
FINISHED or PLAIN

•

PHONE 3-1635 P. O. Box 2090

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 234

Cutting-Oil Unit

A cutting-oil dispensing unit that saves time is being sold by Ridge Tool Co., 400 Clark St., Elyria, Ohio. The unit includes a hand-operated dispenser, flexible hose, chip pan with handles, reservoir with carrying bale, and a 2-gal. can of cutting oil.

Circle T-43 on Reader-Service Card

Truck Load Stabilizer

A load stabilizer that holds column-stacked cases firmly to pallets of light trucks eliminates breakage and speeds handling of fragile or unstable loads. The attachment is manufactured by Lamson Mobilift Corp., Syracuse 1, N. Y.

Circle T-44 on Reader-Service Card

Live-Storage Racks

Space-saving live storage is now available with a rack conveyor strip manufactured by The Rapids-Standard Co., Inc., 342 Rapistan Bldg., Grand Rapids, Mich. The flow track is for use in warehouses and shipping and as product accumulators in assembly lines.

Circle T-45 on Reader-Service Card

Self-Oiling System

Higher-speed lower-cost metal cutting is said to be possible with a Spray-Lube system manufactured by C. A. Norgren Co., 3499 S. Elati St., Englewood, Colo.

Circle T-46 on Reader-Service Card

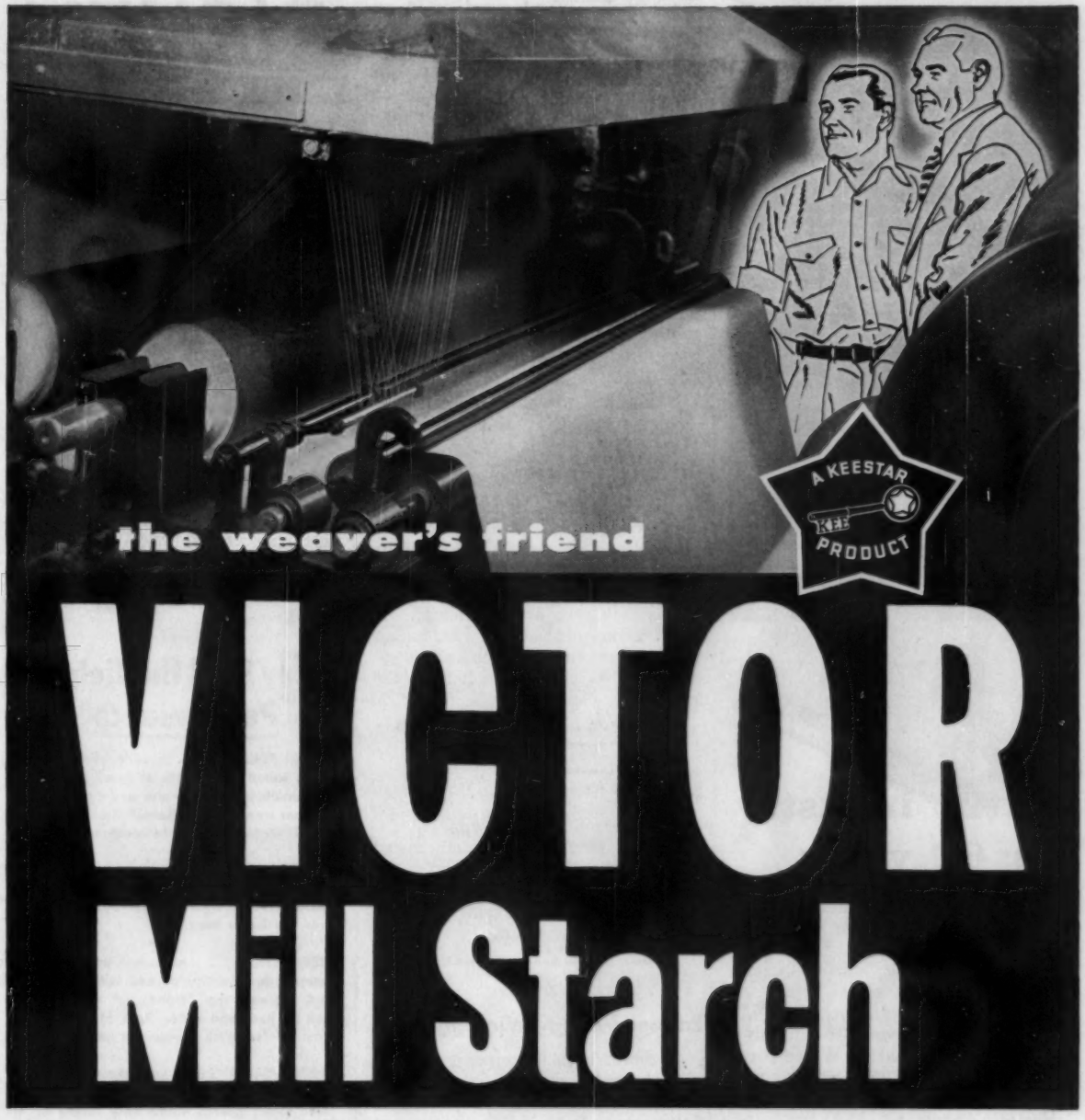
Mop Washer

The Jet Stream mop washer being made by Geerpres Wringer, Inc., 1780 Harvey St., Muskegon, Mich., is a compact, bottomless unit that can be attached to any water outlet adapted for hose connections. The washer can be placed in sinks, over floor drains, or in mop wagons.

Circle T-47 on Reader-Service Card

Stand for Threading Pipe

A portable stand for threading pipe is being sold by Beaver Pipe Tools, Inc., 310 Dana St., N.E., Warren, Ohio. The stand has a wrenchless



VICTOR Mill Starch

always uniform and backed by Keever Service

Charles C. Switzer, Vice President
TEXTILE SALES DIVISION
1200 S. C. NATIONAL BANK BLDG.
GREENVILLE, SOUTH CAROLINA

THE KEEVER STARCH CO. ★ GENERAL OFFICES ★ COLUMBUS 15, OHIO

Processors of corn, wheat and blended starches for industry since 1898

For more data, write this page number on Reader-Service card. →

Spinning Room, Greenwood Mills, Greenwood, S.C.

serving the textile industry for 60 years

"Foot friendly" Northern Hard Maple is the best floor you can put under your feet. Workers like its *resiliency*, its bright, tight structure that brushes dirt-free easily, fights scuffs, scars, dents. It's easy to refinish and lasts for years. Write for 1957 listing of **MFMA**-approved floor finishing products. See Sweet's (Arch. 13j-MA) for full technical data.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
Suite 592, Pure Oil Bldg., 35 E. Wacker Drive
Chicago 1, Illinois

NORTHERN HARD MAPLE
the finest floor that grows
BEECH and BIRCH

chuck that moves forward or in reverse. The gears of the chuck are fully enclosed and are lubricated for the life of the chuck. The chuck can also be bought separate and can be used to modernize your old production machinery.

Circle T-48 on Reader-Service Card

Rotary Pump

A corrosion-resistant bronze rotary pump for vacuum and pressure applications in handling steam or inert gases carrying entrained moisture is being produced by Dexter Folder Co., Pearl River, N. Y.

Circle T-49 on Reader-Service Card

Driverless Tractor

An electronically operated tractor that requires neither an operator nor physical connectors is offered by Barrett-Cravens Co., 630 Dundee, Northbrook, Ill. The tractor moves in a steady path at a predetermined speed to its destination. The tractor will not stray from its path and travels at a safe speed for workmen in the area.

Circle T-50 on Reader-Service Card

Stapling Machine

Container Stapling Corp., 308 N. Park Ave., Herrin, Ill., has announced a foot-operated bottom stapler to staple telescope cartons, bags, flat pieces of interior packaging material, and flat pieces of board.

Circle T-51 on Reader-Service Card

Enclosed Motor Winding

A motor with its winding covered with epoxy resin is announced by General Electric Co., 1 River Rd., Schenectady 5, N. Y. The casing protects the winding from moisture, lint, abrasives, and chemicals. New motors with this casing are not available at this time, but GE service shops apply the resin to old motors at the time of reworking.

Circle T-52 on Reader-Service Card

Floor-Covering Material

A plastic composition material that prevents slipping on outdoor ramps, washrooms, oily floors, and other slippery surfaces is announced by American Abrasive Metals Co., 460 Coit St., Irvington, N. J. Other

CONTINUED ON PAGE 242

DARNELL
CASTERS AND WHEELS

Designed for use in the textile industry

..they lead the field in Performance

RUBBER TREADS . . . a wide choice of treads suited to all types of floors, including Darnelloprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

RUST-PROOFED . . . by zinc plating, Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

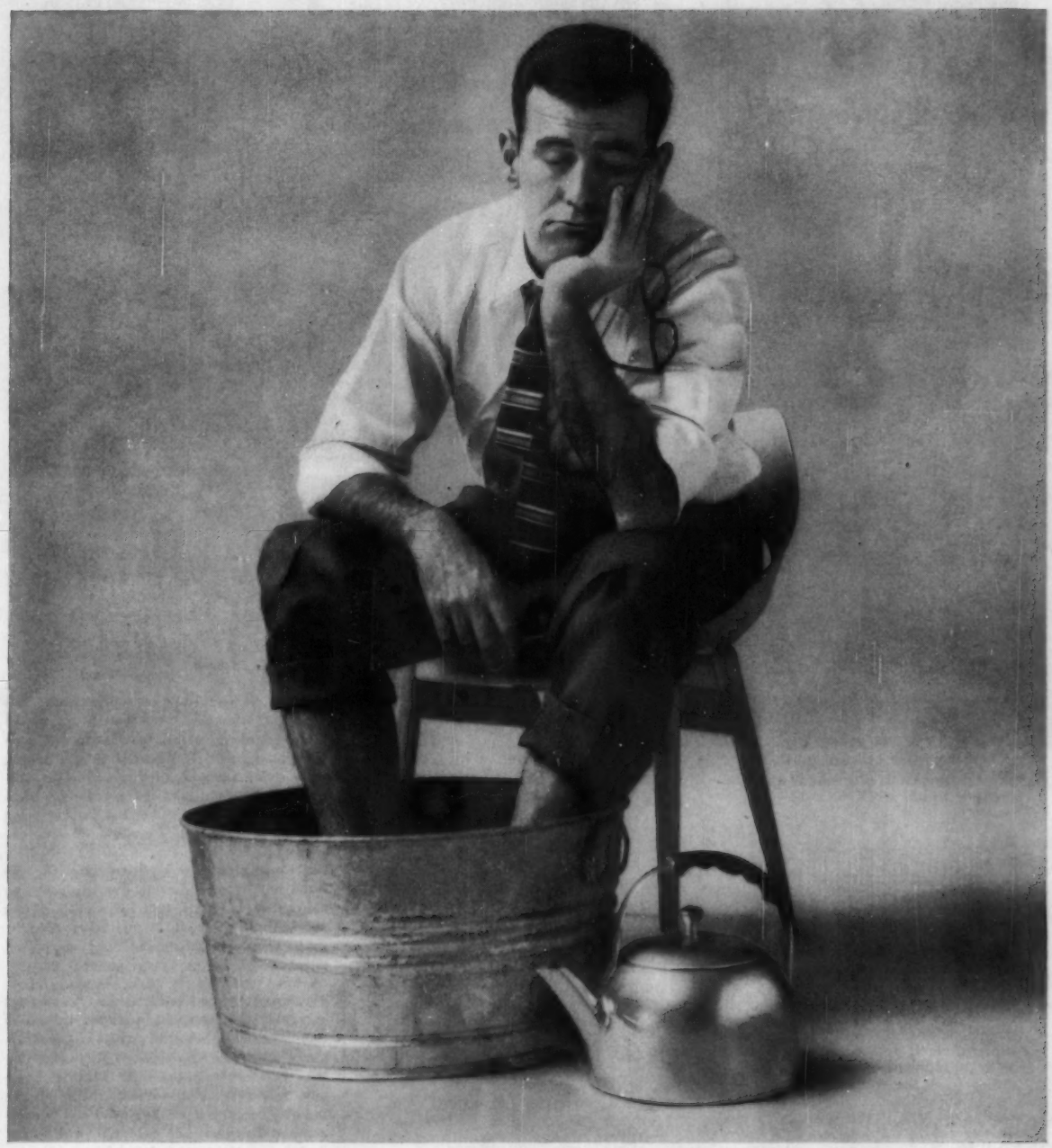
LUBRICATION . . . all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

STRING GUARDS . . . Even though string and ravelings may wind around the hub, these string guards insure easy rolling at all times.

The full story is yours for the asking-

FREE new MANUAL

DARNELL CORPORATION, LTD.
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA
60 WALKER STREET, NEW YORK 13, NEW YORK
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

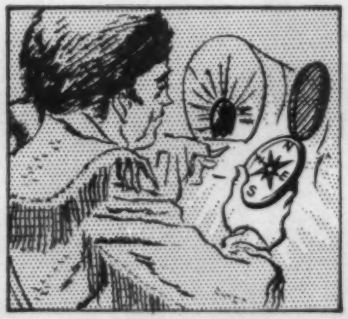


DOG TIRED from looking for a good, dependable source for needles? Rest easy! For the finest quality needles for knitting, sewing, felting or tufting, just call . . .

THE TORRINGTON COMPANY

Torrington, Conn., U.S.A. Branches in New York, Philadelphia, Boston, Chicago, Greensboro, St. Louis. Pacific Coast Representative: E. G. Paules, Los Angeles

For more data, write this page number on Reader-Service card. →



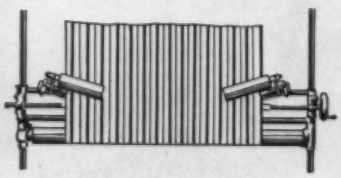
WORLD-FAMOUS **GUIDER . . . the compass has dependably directed travelers to journey's end for centuries**

WORLD-FAMOUS, **too . . . in textile manufacturing is the ever-dependable**

MECHO AIR GUIDER

FAMOUS FOR SAVING HUNDREDS AND HUNDREDS OF DOLLARS YEARLY BY

- **minimizing costly equipment repair "down-time"**
- **eliminating double edges and spattering**
- **speeding fabric processing**
- **preventing woven fabric spoilage**
- **maintaining cloth alignment and constant width**



Add to all the above advantages: no weights, levers, nor linkages to bother with, extremely low initial and operating costs, infinite adjustability to handle fabrics from the lightest to #8 duck, even in operation . . . then you'll understand why MECHO is considered the greatest buy in Guiders! *ORDER yours TO-DAY.* You'll wonder how you ever got along without it.

FREE! Write for Catalog and ask about MECHO's complete Guiding Service, standard in hundreds of finishing plants handling semi-rigid plastics, artificial leather and rubber, felt, and gauze. Stainless steel, acid- and moisture-resistant units with sealed bearings also available.

GUIDER SPECIALTY COMPANY
427 W. Rock Ave.,
New Haven 15, Conn.

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 238

textile-plant applications are said to be around woolen combers. Colors are tile red, blue, green, gray, and black.

Circle T-53 on Reader-Service Card

Shatterproof Window Panes

A window pane that can be dropped, stepped on, or even nailed into place is being introduced by Corrulux Div., L-O-F Glass Fibers Co., P. O. Box 20026, Houston 25, Tex. The panes are manufactured in seven stock sizes, conveniently packaged, and come in two green colors.

Circle T-54 on Reader-Service Card

Water-Chilling Units

A package unit comprising a cooling unit and an insulated storage tank is offered for large-scale users of cold water by William Schaller Co., Inc., 1245 Farmington Ave., W. Hartford, Conn. The units are designed to supply adequate cold water at peak demand. All water passages are made of copper or brass, and the storage tank is stainless steel.

Circle T-55 on Reader-Service Card

Flow Alarm

An instrument that signals the operator when liquid flow in cooling lines or other installations fails has been marketed by Fischer & Porter Co., 553 Jacksonville Rd., Hatboro, Pa. Electrical contacts sealed in a glass tube are actuated by a magnet attached to the float extension rod that rides in the coolant stream. The contacts may be placed so as to give a high- or low-limit signal. The alarm system is not sensitive to vibration; and if the alarm system fails, a signal is given the operator.

Circle T-56 on Reader-Service Card

Paper Clothing Mailers

Multiwall bags for shipping small quantities of clothing items have been marketed by Bemis Bro. Bag Co., 408 Pine St., St. Louis, Mo. The bags are moistureproof and can be supplied to specified sizes and printed to suit the customer.

Circle T-57 on Reader-Service Card

Vertical Pumps

A series of pumps that will handle from 200 to 7,500 gals. per hr. has been marketed by Layne & Bowler Pump Co., 2943 Vail Ave., Los An-

CONTINUED ON PAGE 248

he's working for you

THIS FELLOW IS TRAINED IN YOUR BUSINESS. His main duty is to travel the country — and world — penetrating the plants, laboratories and management councils . . . reporting back to you every significant innovation in technology, selling tactics, management strategy. He functions as your all-seeing, all-hearing, all-reporting business communications system.

THE MAN WE MEAN IS A COMPOSITE of the editorial staff of this magazine. For, obviously, no one individual could ever accomplish such a vast business news job. It's the result of many qualified men of diversified and specialized talents.

AND, THERE'S ANOTHER SIDE TO THIS "COMPOSITE MAN," another complete news service which complements the editorial section of this magazine — the advertising pages. It's been said that in a business publication the editorial pages tell "how they do it" — "they" being all the industry's front line of innovators and improvers—and the advertising pages tell "with what." Each issue unfolds an industrial exposition before you — giving a ready panorama of up-to-date tools, materials, equipment.

SUCH A "MAN" IS ON YOUR PAYROLL. Be sure to "listen" regularly and carefully to the practical business information he gathers.

McGRAW-HILL PUBLICATIONS

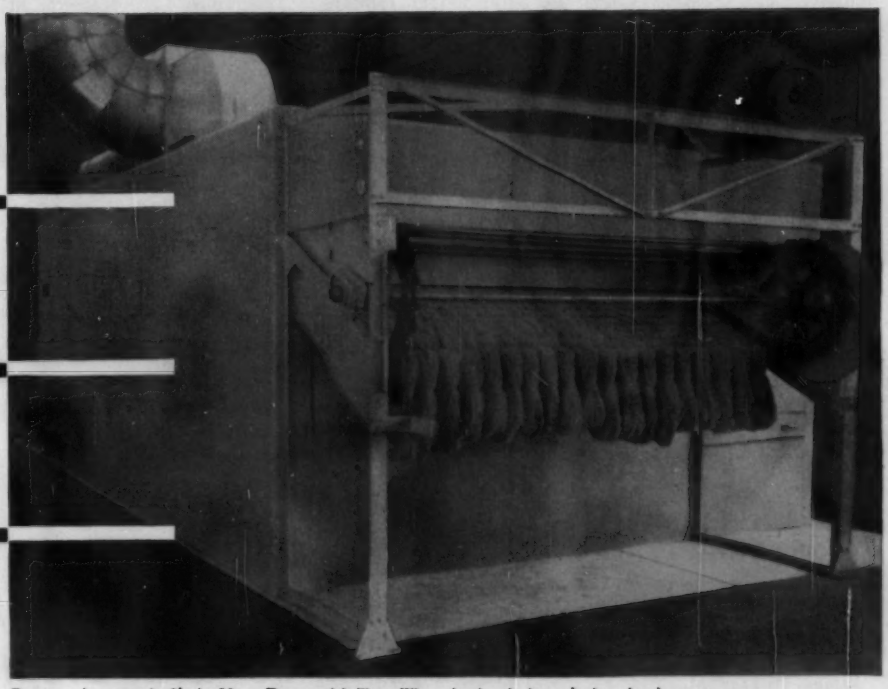
add to your PROFIT from production savings!

LOW OPERATING COST

EASIER INSTALLATION

IMPROVED HOUSING

RAPID DRYING



Proctor Automatic Skein Yarn Dryer with Two-Way air circulation, drying dyed carpet yarn.

PROCTOR EQUIPMENT FOR THE TEXTILE FIELD

AUTOMATIC BLENDING SYSTEMS • WEIGHING FEEDS • PICKERS • SHREDDERS • BALE BREAKERS • SYNTHETIC CARDS • GARNETTS • DRYERS FOR FIBROUS MATERIAL • YARN DRYERS • HOT AIR SLASHER DRYERS • CLOTH CARBONIZERS • ROLLER DRYERS AND CURERS • LOOP AGERS FOR PRINT GOODS • TENTER HOUSINGS • OPEN-WIDTH BLEACH SYSTEMS FOR WOVEN FABRICS • MULTIPASS AIRLAY DRYERS • NYLON SETTING EQUIPMENT • CON-O-MATIC WASHERS • CONTINUOUS BLEACH SYSTEMS FOR PRODUCING TUBULAR KNITS • EQUIPMENT FOR "REDMANIZED" ® SHRUNK-TO-FIT FABRICS • CARPET DRYERS

WRITE FOR DETAILS

PROCTOR DRYERS for skein yarn

Regardless of your output, there is a Proctor Yarn Dryer with the right capacity to make your drying profitable. Truck Dryers for skeins and cakes, or Automatic Dryers for continuous operation, both feature controlled air circulation to provide the *greatest drying uniformity obtainable*. Cotton, wool, silk, or synthetics can be dried at fastest possible rates—show substantial savings in time, labor, and steam requirements. And, as with all Proctor equipment, you can depend on performance guaranteed in terms of the finished product produced. Investigate these profit opportunities now—write today for latest information bulletins.

Proctor

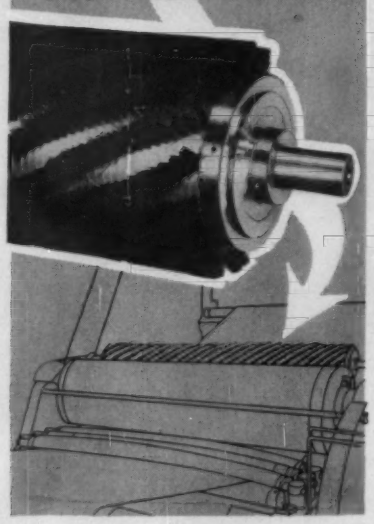
PROCTOR & SCHWARTZ, Inc.

PHILADELPHIA 20, PA.

MANUFACTURERS OF TEXTILE MACHINERY AND INDUSTRIAL DRYING EQUIPMENT

For more data, write this page number on Reader-Service card. →

WHY JENKINS' METLKOR® BRUSHES are on JAMES HUNTER SQUEEZE ROLLS



A JAMES HUNTER SQUEEZE ROLL WITH JENKINS' METLKOR BRUSH

James Hunter Machine Co., North Adams, Mass., wanted a brush to stand up when removing acidified flock from their Carbonizer Squeeze Rolls. Jenkins' engineers designed a METLKOR brush with exposed metal parts of stainless steel and bristle of acid-resistant Nylon.

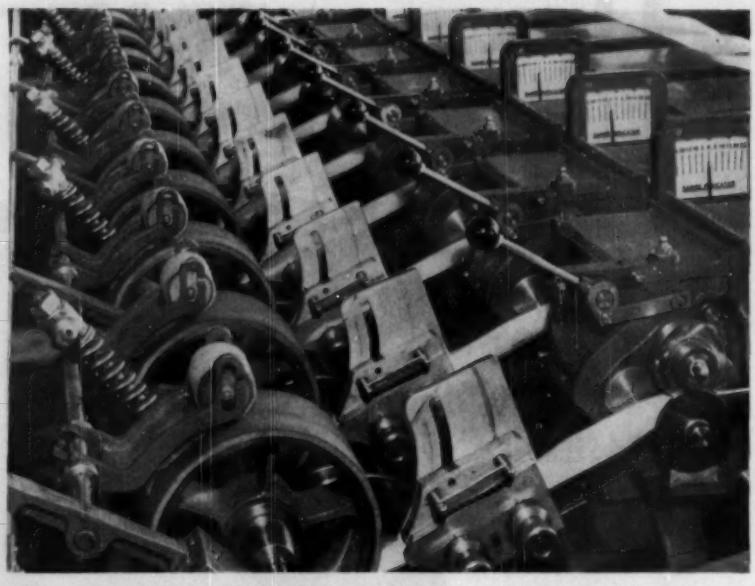
Mr. Frank B. Morrill, Chief Engineer, James Hunter Machine Co., says: ". . . we have been using Jenkins' brushes for flock removal on our Squeeze Rolls for years . . . they do a much better cleaning job than the brush previously used, and stand up several times longer . . ."

This top textile machinery manufacturer has proven the efficiency of Jenkins' METLKOR — the cylinder brush that lasts many times longer and can be re-bristled! If you have any standard or special brush problem, write us today.

Specify Jenkins' METLKOR
the original . . . the best Metal-Core Brush

METLKOR®
CYLINDER BRUSHES
and LIFEWOOD® WOOD BACKED BRUSHES

M. W. JENKINS' SONS, INC.
— Serving Industry for 80 Years —
231 Pompton Ave., Cedar Grove
Essex County, N. J. • CEnter 9-5150



DRAW BOX, equipped with Raper Autoleveller, was modified to handle long-staple wools. The sliver weighs up to 1,000 drams per 40 yards. The ratch was increased to 11½ ins. and the measuring-roll width to ½ in.

New WORSTED-DRAWING System For Long-Staple Wools

A gill box and a draw box produce 9,000 lbs. of 20-dram roving per 45-hr. week. Compared with the old system, the results are—

- **Three operators instead of six**
- **Two machines instead of eight**

A NEW SYSTEM FOR PROCESSING WORSTED YARNS from long-staple wool has been installed by J. C. Horsfall & Sons Ltd., Glusburn, England. Two machines are used to process sliver into roving instead of the usual eight machines. The quality of the yarn from the roving is comparable with yarn from conventionally made roving.

The unit consists of one gill box and one draw box, each equipped with the Raper Autoleveller. Three operators look after the set, which produces up to 9,000 lbs. of 20-dram roving per 45-hr. week. Six operators did this amount of work on the conventional machinery.

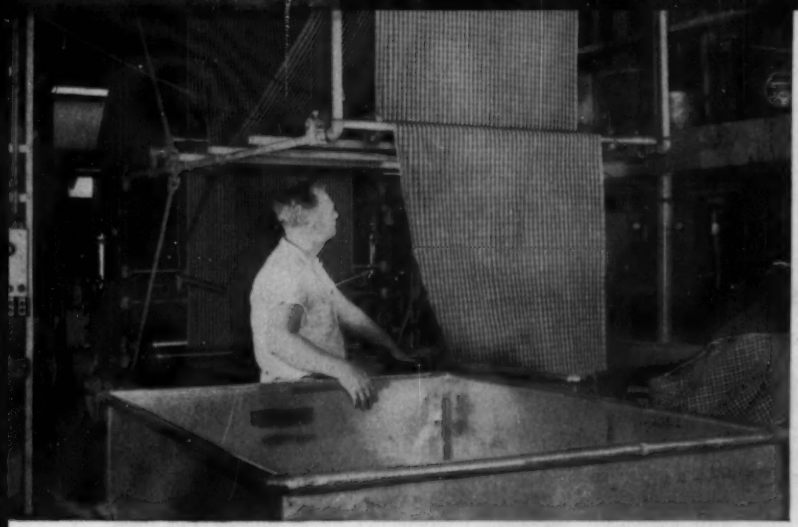
Three drawing operations are used on a 50-50 50s-54s quality wool blend. Only 16 doublings are used, compared with 768 doublings on the conventional system.

Draw Box Modified

The draw box was modified to handle the longer, coarser material. The ratch was increased to 11½ ins. and the measuring-roll width to ½ in. The width of the pressure-drafter unit is ⅝ in. and the length 4½ ins.

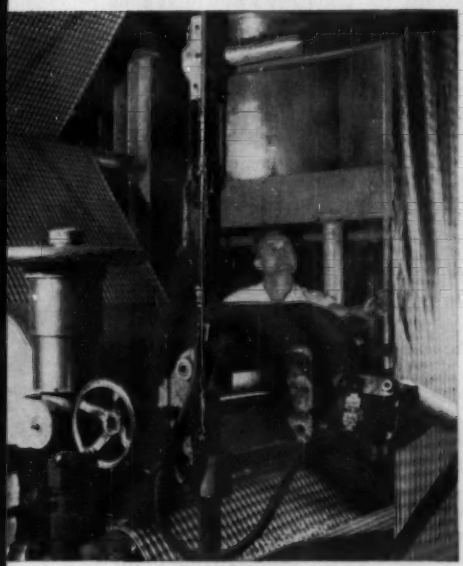
Delivery at the draw box is onto 14x7-in. bobbins, which run at 320 to 350 rpm. The weight of sliver at the draw box is up to 1,000 drams per 40 yds. Drafts from 7 to 10 are used.

The pressure-drafter unit was modified to handle the longer fiber. Setings from 2 to 3½ ins. between the front-roll nip and the delivery end of the pressure-drafter unit can be made.

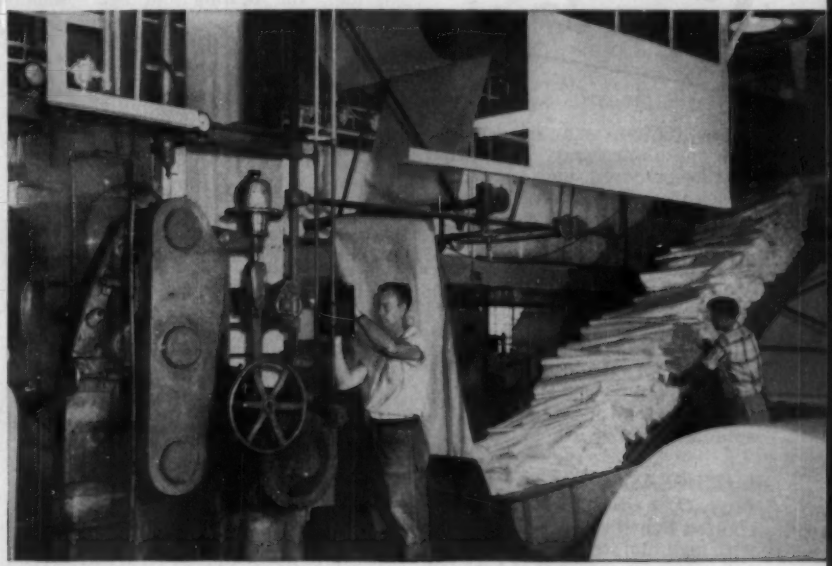


Fabric passes over Stainless Steel rollers in this photo.

Dye vats, bobbins and fittings are all Stainless Steel.



Two-roll padder. Stainless dye tanks are in background.



Here, you can see the Stainless Steel slide and roller.

Nothing touches fabric but Stainless Steel

IN THIS LARGE GINGHAM PLANT

The plant shown here operates 1200 looms; and it is one of the largest mills in the South. As part of a constant modernization program, Stainless Steel equipment is specified for virtually all new installations. The reasons are simple: easier cleaning, no splinters, no contamination, more brilliant colors and *much* longer service life.

The pictures show several examples of Stainless Steel in use at this progressive mill. Notice the important fact that nothing except Stainless Steel is allowed to touch the fabric.

If you want maximum performance from your equipment, design with Stainless Steel *from the beginning*. For service-tested quality, specify USS Stainless Steel.

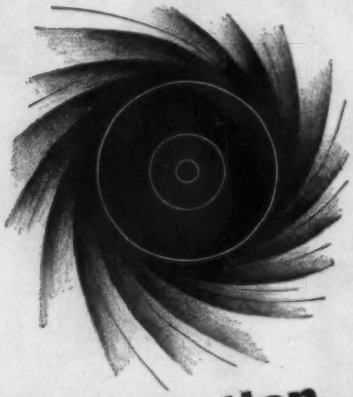
UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS STAINLESS STEEL

SHEETS • STRIP • PLATES • BARS • BILLETS • PIPE • TUBES • WIRE • SPECIAL SECTIONS

7-58

UNITED STATES STEEL



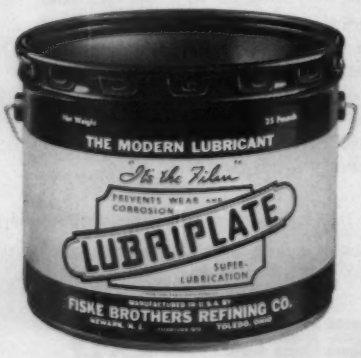
lubrication at high speeds

These LUBRIPLATE Lubricants provide the all-necessary lubrication for those modern, high speed machines operating up to 30,000 revolutions per minute.

LUBRIPLATE
No. 205—A superior and protective lubricant for anti-friction and plain sleeve grease type bearings, operating at speeds in excess of 5000 R.P.M. Widely used for lubrication of high speed bearings on woodworking machines, textile spindles, grinder arbors, etc.

LUBRIPLATE
Nos. 0, 1 and 2 are highly specialized light fluid type lubricants with high film strength. Their characteristics are excellent at both low and elevated temperatures. May be applied by conventional means.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Write for free "LUBRIPLATE DATA BOOK"... a valuable treatise on lubrication. LUBRIPLATE DIVISION, Fiske Brothers Refining Company, Newark 5, N. J. or Toledo 5, Ohio.



Close Care of Motors Results in Top Performance

Recognizing electric-motor troubles, correcting them speedily, and giving maintenance attention to the prevention of these troubles simplifies obtaining maximum performance from every electric motor in the mill.

Bearings that are too hot to touch or smoking may be caused by (1) a dry bearing with insufficient oil, (2) oil rings clogged by a dirty bearing, or (3) a tight bearing. On tight bearings, the bearing and shaft usually need scraping. If bearings have worked out of their slots, the bearing and shaft should be replaced.

If a shaft is out of alignment, a bearing may bind because of too much strain on the pulley. It may also loosen by vibration. If there's too much vibration, the trouble can generally be corrected by tightening the setscrews that hold the bearing in its journal housing.

Use the Proper-Size Motor

Warm bearings are generally a result of an overload on the motor and heat transferred from the rotor or stator. In such instances, the load must be decreased or a larger motor used.

Smoking windings or charred wedges over the coils indicate that the bearing is worn on one side. If this defect is discovered soon enough, the bearings can be realigned or new wedges can be inserted to correct the trouble. But if the motor runs too long under these conditions, the coils have to be replaced.

When a motor fails to start, there are several reasons:

1. The voltage is too low, and there is insufficient torque. Then the voltage must be increased.

2. There's a short circuit in the stator windings caused by rough handling. The damaged coils must be replaced.

3. There's too great a load. Then the load must be reduced, or a clutch must be installed between the load and the motor.

4. Tight bearings cause friction. Bearing caps should be loosened. Then if the bearings are still too tight, they must be scraped.

Failure To Start

Failure of a motor to start when automatic controls are used is generally caused by the controls. These causes may be: (1) the solenoid is not functioning because the battery circuit is open, (2) the arms holding the circuit-breaker contacts are not working properly, and (3) the contacts are dirty or burned.

Other causes of failure to start can be detected by examining the fuses and relays, checking the starter carefully, inspecting the air gap, and removing the pulley to see if there's an overload.

Failure to start with the starter handle on and a humming sound is a frequent trouble because the starter is trying to run single-phase, an air gap is displaced, or there is an open circuit in the stator windings.

What Causes Single-Phase?

When the motor is trying to run single-phase, one fuse is generally blown or one overload relay is out of order. Adjustment of the relay or replacement of the fuse corrects the trouble easily.

If an air gap is displaced, the bearing is out of true and should be shimmed or replaced.

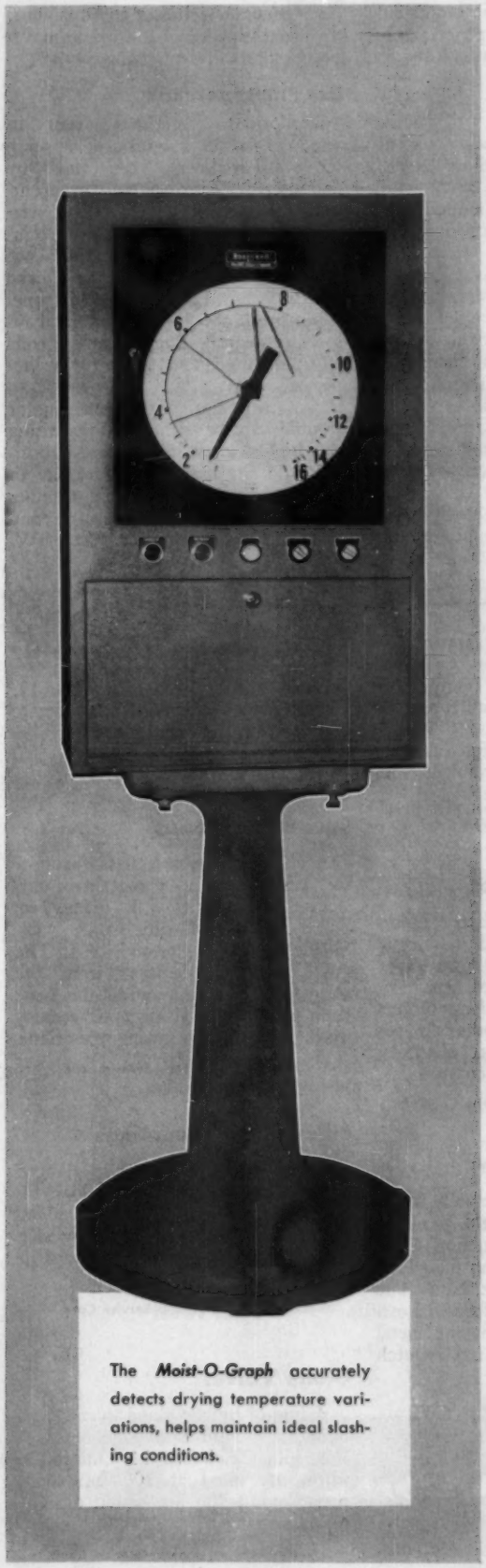
An open circuit in the stator windings is caused by a short circuit that has punctured a coil or by rough handling. When a repaired motor runs with intervals of speed changes, one coil in one phase has been reversed.

When a motor starts and runs but heats while the stator is cool, the rotor bars are loose or grounded from abnormal currents in the rotor. To correct this trouble, the setscrews holding the rotor bars to the short-circuiting rings should be tightened and soldered or welded. Then the grounds should be removed.

What Causes Half Speed?

Half-speed running on a wound-rotor motor is caused by: (1) broken connections between the windings and the collector rings, or (2) one brush is not touching, and there's an open circuit in the rotor connections. The break can be repaired, or the worn brush spring can be replaced easily.

Lagging motor speed is the result of insufficient torque caused by the rotor field in the circuit; the discharge switch is usually in the wrong position. For this trouble, the circuit be-



The ***Moist-O-Graph*** accurately detects drying temperature variations, helps maintain ideal slashing conditions.

HONEYWELL

MOIST-O-GRAPH

keeps beam moisture constant for . . . best weavability

The result of years of field experience, the Honeywell *Moist-O-Graph* gives close control of slashing. Set points are automatically held during creeps, stops or shutdowns. Calibration checks can be made quickly with a conveniently located switch. Dial settings adapt the system to many combinations of fibers, blends or sizings. The *Moist-O-Graph* requires little maintenance and minimum spare parts stock.

Your nearby Honeywell sales engineer can show you how the *Moist-O-Graph* can step up production and quality in your slasher room and increase efficiency in your weave room. Call him today . . . he's as near as your phone.

MINNEAPOLIS-HONEYWELL REGULATOR CO., *Industrial Division*, Wayne and Windrim Avenues, Philadelphia 44, Pa.—in Canada, Toronto 17, Ontario.

For complete Moist-O-Graph technical data, write for Bulletin 9306, "Instrumentation for Slasher Room Processes."

MINNEAPOLIS
Honeywell
BROWN INSTRUMENTS

First in Controls

AH!

A sound of approval
. . . and we hear it often
around ALISTRAN,
the viscose metallic yarn.

We hear it from
purchasing men calculating
the savings over
"all purpose" metallics
(because ALISTRAN *costs* less
and, unsupported, gives a
gain in yield of from
15-20% *too!)*

And on the looms,
ALISTRAN gets praise
from the toughest millmen
as it runs like a dream
without stoppers (because
ALISTRAN is tough . . . has
twice the tensile strength
of most metallics).
Also, they like its
versatility. They run it
on any type loom or
knitting machine and when they
want trouble-free quilling.

And the consumer? They find
pleasure aplenty in the
glistening beauty of
ALISTRAN that even the most
expensive metallics cannot
surpass. ALISTRAN *is*
beautiful . . . and mothproof,
non-tarnishable and
dry cleans magnificently.

Remember, if you produce
yarn dyed or loom finished
fabrics, you can spend more
but cannot buy a metallic yarn
that suits your needs better!

ALISTRAN* by
MULTI-TEX
PRODUCTS CORP.
56 ELM ST., NEWARK 5,
NEW JERSEY
MARKET 3-1021

*Reg. U. S. Pat. Off.

tween the exciter and the motor field windings should be opened. This trouble may also be caused by too great a motor load.

How To Stop Buzzing Sounds

Buzzing sounds in a motor are usually caused by a short-circuited coil or group of coils, an open circuit, or a ground. Short-circuited coils are caused by mechanical injury or broken-down insulation from overheating. A new coil is needed. Grounds should be removed.

Burned insulation is caused by one or more coils too hot from a short circuit. The result is mechanical injury or broken-down insulation. Then the coil must be replaced.

Low growling noises are caused by a rotor out of the magnetic center of the stator. In this instance, the motor is not level or the shaft collars have shifted to leave end play on the shaft.

Variable humming sounds are usually caused by high resistance in the line (generally on long transmissions) or unstable speed of the prime mover on the alternator supplying the motor.

Use Proper Lubricant

Explosions sometimes occur in windings while a motor is running hot. The explosions are caused by dampness. Damp circulating currents between the coils, or between a coil and the ground, create a temporary ground or short circuit.

When an explosion occurs, bake the motor until all dampness is gone. Then brush the coils with a good insulating varnish. Sometimes the coils are punctured and have to be replaced.

A great deal of electric-motor trouble can be eliminated by using the highest-grade oil in sleeve bearings and the best grease in roller or ball bearings. Most motor troubles come from improper oiling or a complete lack of maintenance. *Ernest W. Fair.*

EQUIPMENT & SUPPLY NEWS

CONTINUED FROM PAGE 242

geles 22, Calif. The pumps and motors are assembled as units and are made for wells of 4- and 6-in. dia. The complete package for each application is factory assembled from pre-engineered components.

Circle T-58 on Reader-Service Card

Variable-Speed Motor

A variable-speed a.c. electric motor is being made in the U.S. by Bogue Electric Mfg. Co., 52 Iowa Ave., Paterson, N. J., under the license of Laurence, Scott, & Electromotors Ltd., England. The motor is for driving textile machines, elevators, conveyors, pumps, and compressors.

Circle T-59 on Reader-Service Card

Weld-Cleaning Brush

A stainless-steel-wire scratch brush for cleaning stainless weld beads is available from Air Reduction Sales Co., Div. of Air Reduction Co., Inc., 60 E. 42nd St., New York, N. Y. The brush eliminates the possibility of oxidation of the stainless parent metal caused by using ordinary steel scratch brushes.

Circle T-60 on Reader-Service Card

Loading Ramp

A hydraulically operated 10,000-lb.-capacity adjustable ramp for loading docks is available from Rowe Methods, Inc., 2534 Detroit Ave., Cleveland 13, Ohio. Push-button controls operate the dock and its floating action.

Circle T-61 on Reader-Service Card

Saw-Blade Guard

A circular table-saw guard made of cast aluminum and ¼-in. transparent, shatterproof Plexiglass is being produced by Brett-Guard Co., 5 W. Sheffield Ave., Englewood, N. J. The guard protects operators from the dangerous saw blade and at the same time permits full vision and accuracy during all common sawing operations.

Circle T-62 on Reader-Service Card

Pillow-Block Mountings

Pillow-block units with a flanged mounting and an eccentric lock for antifriction bearings have been added to the line of bearings made by SKF Industries, Inc., Front St. and Frie Ave., Philadelphia 32, Pa.

Circle T-63 on Reader-Service Card

Globe Valves

A line of bronze globe valves is announced by the Lunkenheimer Co., Box 360, Cincinnati 14, Ohio. The valves are rated at 200 lbs. steam pressure and 400 lbs. water, oil, and gas pressure.

Circle T-64 on Reader-Service Card

Life changes...
so must fibers and fabrics

The *best* solutions to current fabric problems are *contemporary* fibers.

On these pages you see listed nine of them—part of Celanese' constantly expanding answer to today's specialized fabric needs.

Engineered to specific end-uses, these modern fibers have influenced every area of fashion, home furnishings and industry. They combine modern talent and old fashioned integrity. You can depend on them every stitch and step of the way.

If you too believe the alternative to falling behind is thinking ahead, we invite you to *go contemporary with Celanese.*

Celanese Corporation of America, New York 16, N. Y.

'ARNEL the new triacetate fiber for easy-to-care-for lingerie, apparel and curtainings.

ACETATE the beauty fiber for elegant dress fabrics, sportswear, men's shirtings, home furnishings fabrics.

CELAPERM the acetate yarn with "sealed-in" color for bathing suits, sportswear, children's clothes, home furnishings.

BULKED ACETATE new bulked filament yarn brings a lofted look to home furnishing and upholstery fabrics and men's, women's and children's apparel.

CELACLOUD the light, springy new acetate bedding fiber is taking over in pillows, comforters, mattresses.

QUILTICEL permanently bonded acetate interlining holds its shape in all quilted outerwear, loungewear, and infants' wear.

FORTISAN super-strong rayon for home furnishing sheers; adds strength to decorative fabrics.

FORTISAN-36 high strength heavy denier rayon specifically engineered for industrial uses such as high pressure hoses, V-belts, tarpaulins.

RAYON the versatile yarn—at a most welcome price.

Celanese® Arnel® Celaperm® Celacloud™ Quilticel® Fortisan® Fortisan®-36

Celanese CONTEMPORARY FIBERS

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CROMPTON
RICHMOND
COMPANY
INCORPORATED
FACTORS

The Zero Hour

It's wonderful, at the end of your fiscal year, to be informed that your credit losses were zero, your receivable bookkeeping costs were zero, the outlay for collections was zero, and that you served additional volume which you would have otherwise rejected.

The above is the yearly experience of firms Factored by Crompton: we assume all credit risks, all receivable bookkeeping and collection chores; and since our credit experience goes back many generations and into many fields, we accept business that many clients would otherwise reject.

Since we provide daily cash for receivables, our clients are ready for any zero hour emergency.

CROMPTON COMPANY 1857 1957 150th ANNIVERSARY

The Human Factor

CROMPTON-RICHMOND CO., INC.
1071 Avenue of the Americas, New York 18

Crompton-Richmond-Joel Hurt Co.
Glenn Building, Atlanta 1, Georgia

NEWS ABOUT SUPPLIERS

WILLIAM ALLEN SON'S CO., Worcester, Mass.—Has been acquired by O. G. Kelley and Co., Boston, Mass. . . . **ALLIS-CHALMERS MFG. CO.**, Milwaukee, Wis.—Has elected Boyd S. Oberlink to the firm's board of directors. . . . **AMERICAN VISCOSE CORP.**, Philadelphia, Pa.—Has named Dr. Francis M. Parker to the newly created position of Director of Marketing. . . . **ATLAS POWDER CO.**, Wilmington, Del.—Has broken ground for a $3,000,000 technical center.

BABCOCK & WILCOX CO., New York, N. Y.—Has elected S. T. Mackenzie a vice president in charge of Boiler Div. sales. Paul H. Carlson has been appointed advertising manager for the Tubular Products Div. . . . **BARNES TEXTILE ASSOCIATES**, Boston, Mass.—Has coordinated its activities with those of Scovell, Wellington & Co. and offices are now located at 110 State St. . . . **BECCO CHEMICAL DIV.**, Food Machinery & Chemical Corp., Buffalo, N. Y.—Has promoted Dewey H. Nelson to sales manager. Albert P. Shutts is now assistant sales manager.

BORDEN CO., New York, N. Y.—Has named Raymond J. Lodge as head of the Resins and Chemicals Dept. Charles W. Smith has been named head of the Polyco-Monomer Dept. . . . **BRYANT CHEMICAL CORP.**, North Quincy, Mass.—Has added Richard Roberts to its technical staff. . . . **BUFFALO FORGE CO.**, Buffalo, N. Y.—Has appointed Charles W. Lockhart as sales manager of the Blower and Air Conditioning Div.

CALKIN & BAYLEY, INC., New York, N. Y.—Has formed an industrial consulting firm. Industries to be served include textiles. . . . **THE CARPENTER STEEL CO.**, Alloy Tube Div., Union, N. J.—Has appointed Robert Potter as New England sales manager. . . . **CHEMSTRAND CORP.**, Decatur, Ala.—Has named Edwin J. Heilman and Theodore S. Wheat to sales posts. . . . **CLEAVER-BROOKS CO.**, Milwaukee, Wis.—Has appointed J. U. Kaye & Co., Pittsburgh, Pa., as manufacturers' representative. . . . **COURTAULDS (ALABAMA) INC.**, New York, N. Y.—Has introduced a fabric styling service.

DEWEY & ALMY CHEMICAL CO.—Has appointed Edward L. Mears as manager of the central services division. . . . **DEXTER CHEMICAL CORP.**, New York, N. Y.—Has named

ROLAND E. DERBY (left) president of Textile Aniline & Chemical Co., Lawrence, Mass., has been appointed treasurer of the American Association of Textile Chemists & Colorists. PHILIP L. PINDELL (center) has been named representative for Benjamin Booth Co. in North and South Carolina. GEORGE C. HEIN (right) has been appointed Textile District Sales Manager in New York, N. Y., for Celanese Corp. of America.

Charles W. Dorn as director of its textile testing laboratories. . . . **DOBECKMUN Co.**, Cleveland, Ohio—Has appointed Jerry Lauren, Donald Gramling, and James Young as sales representatives. . . . **DRAPER CORP.**, Hopedale, Mass.—Has acquired the Hemphill Co., Pawtucket, R. I. . . . **DU PONT CO.**, Wilmington, Del.—Will build a new chemical plant at the company's Carney Point Works in New Jersey to make sodium CMC.

HELENE G. FONTAINE (left) has been appointed by Continental Can Co., New York, N. Y., as merchandising manager for its metallic yarns. WARD H. BUSHEE (center) has been appointed by R.E.L. Holt, Jr., Greensboro, N. C., to sell Dixon saddle guide products in Georgia and Alabama. ERNEST CANNITY (right) senior sales engineer for James Hunter Machine Co., North Adams, Mass., has been transferred to Southern sales and service headquarters at its new division, W. D. Dodenhoff Co., Inc., Greenville, S. C.

EASTMAN CHEMICAL PRODUCTS, INC., Textile Div., New York, N. Y.—Has appointed William T. Cummins as district sales manager, New York territory. . . . **FLETCHER WORKS**, Philadelphia, Pa.—Will make available to any textile manufacturing firm its full laboratory facilities. . . . **GRAVER WATER CONDITIONING CO.**, New York, N. Y.—Has appointed Vincent J. Calise as general sales manager.

HARTFORD MACHINE SCREW CO., Hartford, Conn.—Will build a plant to manufacture textile machinery parts in Greenville, S. C. . . . **HOLYOKE MACHINE CO.**, Holyoke,

J. F. FORSTER (left) has been appointed executive vice president of Vickers, Inc., Detroit, Mich. He will have direct charge of all Vickers operations. A. DURFEE DAMON (center) has been appointed by Refined Products Corp., Lyndhurst, N. J., as technical sales representative for Hudson Valley, N. Y. RAYMOND F. POLLARD (right) has joined the Warwick Chemical Div., Sun Chemical Corp., Long Island City, N. Y., as textile sales maanger.

Johnson Joint with SYPHON ELBOW
3000 Series
ASSEMBLY PLATE — Holds internal parts in position when head is removed.
SELF-SUPPORTING — Needs no external supports of any kind.
SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

WRITE FOR FACTS

on this Series 3000 Johnson Joint and the syphon elbow. Remember Johnson Joints have written an unmatched service record . . . are first choice among mill men and machinery makers alike . . . and can fit all operating needs.

The Johnson Corporation

814 Wood St., Three Rivers, Mich.

NOW, in one operation . . .

Remove rust, oil, grease from STEEL REEDS *with NEW multi-purpose*

OAKITE RUSTRIPPER

Ever hear of a safe, *alkaline* rust remover? One that degreases and derusts in one operation . . . and strips paint, too? Oakite Rustripper does all three, and does it safely. No cyanide, no troublesome fumes, no disposal problems. You'll be amazed at how much time you'll save with Oakite Rustripper. Call your local Oakite Technical Service Representative for a demonstration, or write to Oakite Products, Inc., 26C Rector Street, New York 6, N. Y.

Export Division Cable Address: Oakite

OAKITE

Technical Service Representatives in Principal Cities of U. S. and Canada

For more data, write this page number on Reader-Service card. → 251

Mass.—Has appointed L. C. Stowell Engineering Co., Charlotte, N. C., as sales representatives in the South. . . . **INTERCHEMICAL CORP.**, Hawthorne, N. J.—Has appointed William Croasdale as head of the Dyestuff Sales-Service Laboratory, Textile Colors Division. . . . **INTERCONTINENTAL CHEMICAL CORP.**, New York, N. Y.—Has purchased the majority interest in Carbic Color & Chemical Co., Inc. of New York. . . . **WILLIAM ISELIN & CO., INC.**, New York, N. Y.—Has elected Richard S. Perry a director. John L. Cole has been promoted to vice president. New assistant vice presidents are Thomas E. Fitzgerald, John W. Stahmann, Robert T. Weller, Jr., Leonard F. Kinsman.

LANLY CO., Cleveland, Ohio—Has appointed A. W. Sokoloski to the post of vice president in charge of engineering. . . . **C. A. LITZLER CO., INC.**, Cleveland, Ohio—Is now occupying its new building at 1817 Brookpart Rd. . . . **LOWELL TECHNOLOGICAL INSTITUTE RESEARCH FOUNDATION**, Lowell, Mass.—Has promoted Dorrance H. Goodwin to the position of executive director.

MARKEM MACHINE CO., Keene, N. H.—Has established a Textile and Apparel Sales Div. with Thomas H. Huggins as manager. At the same time the company has appointed Suehle Associates of Philadelphia, Pa., as exclusive sales agent for the Markem Model 126. . . . **MAPLE FLOORING MANUFACTURERS ASSOCIATION**, Chicago, Ill.—Has elected W. W. Gamble, president of Yawkey-Bissell Hardwood Flooring Co., White Lake, Wis., to head the association. Vice president is S. A. Wells of Menominee, Mich. . . . **MEINHARD & CO.**, New York, N. Y.—Has named Von D. Oehmig, Southern representative, as assistant vice president. Another new vice president is William Sperb of the credit department in charge of credits in the yarn, hosiery, and knitwear fields.

NATIONAL ANILINE DIV., ALLIED CHEMICAL & DYE CORP., New York, N. Y.—Has appointed William H. Metzger as regional representative for fiber sales in Pennsylvania, New York, and New England. . . . **NUODEX PRODUCTS CO.**, Elizabeth, N. J.—Has appointed Robert C. Brumberger as manager of chemical-industry sales. . . . **JOSEPH T. RYERSON & SON, INC.**, Chicago, Ill.—Has appointed L. Paul Lee as manager of stainless-steel sales at the Milwaukee, Wis. plant.

SACO-LOWELL SHOPS, Boston, Mass.—Has moved its Southern Repair Parts Depot from Sanford, N. C. to Easley, S. C. . . . **WHITIN MACHINE WORKS**, Whitinville, Mass.—Has purchased Harvey-Wells Electronics, Inc., Southbridge, Mass.

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NEWS ABOUT MILLS

COTTON MILLS

American Thread Co., Connecticut Div., Willimantic, Conn., is installing 15 Platt Bros. high-draft slubbers.

Bonnie Cotton Mill, Kings Mountain, N. C., is installing 31 sets of Duo-Roth standard change-overs.

Carolina Fine Fabrics, Inc., Hickory, N. C., has started a $75,000 expansion program designed to increase plant capacity by 50%. Plans call for the installation of 26 looms.

Cherokee Textile Mills, Sevierville, Tenn., has purchased 16 deliveries of Saco-Lowell Versa-Matic drawing.

Fieldcrest Mills, Inc., will increase production of its woven bedspread mill at Leaksville, N. C. by approximately 20%. It has purchased 66 box looms, 54 jacquard heads, and 4 two-tier package-dyeing units from Monument Mills, Inc.

Harriet Cotton Mills, Henderson, N. C., has purchased 22 Whitin Superflex spinning frames, 10 Even-Draft drawing frames and 6 regular-draft roving frames.

Hartsville Cotton Mill, Hartsville, S. C., has purchased Saco-Lowell Duo-Roth spinning change-overs covering 6,200 spindles. This brings the mill to a total of 21,904 spinning spindles that have been equipped with Duo-Roth over the past few years.

Henderson Cotton Mills, Henderson, N. C., has ordered 15 Whitin Superflex spinning frames, 252 spindles each.

Kendall Cotton Mills, Addison Plant, Edgefield, S. C., is installing Pneumafil central recovery system on 82 spinning frames. New spoolers are also being installed as well as a Barber-Colman high-speed warper using 38-in. beam heads. Suitable materials-handling equipment is being installed.

Pacolet Mfg. Co., Gainesville, Ga., has just completed the installation of Pneumafil central air-handling systems for 159 spinning frames.

Startex Mills, Spartanburg, S. C., is carrying out a $450,000 expansion program involving construction of a warehouse and improvements in the Crash Mill.

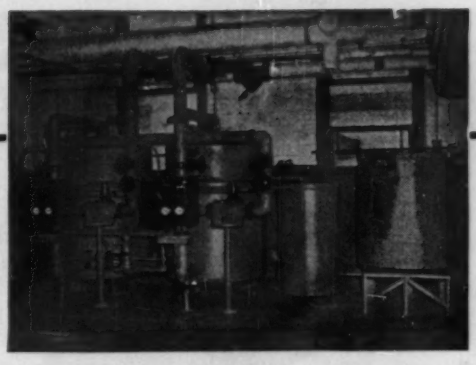
Strickland Cotton Mills, Valdosta, Ga., has completed the installation of a new nine-cylinder West Point slasher. Also installed is a Parks-Cramer cleaning system on all spinning frames including ceiling cleaners. The company has purchased 32 deliveries of high-speed Saco-Lowell Versa-Matic drawing and is changing coilers on its cards for 18x42-in. cans.

Swift Mfg. Co., Columbus, Ga., is building a two-story addition containing 36,000 sq. ft. to provide space for more equipment.

Woodside Mills, Greenville, S. C., has completed installation of Pneumafil central air-handling systems on all spinning frames in the Woodside group. Also installed were Pneumafil Lint-Free Creels on all print-cloth-mill spinning frames. The company has purchased 128 deliveries of Saco-Lowell high-speed Versa-Matic drawing for the Greenville Plant. In addition, it has purchased 24 12x6½ FS-2 roving frames. This purchase completes the card-room program that Woodside has had under way at the Greenville Plant.

WOOLEN AND WORSTED MILLS

Bigelow-Sanford Carpet Co. has begun construction of a new plant at Calhoun Falls, S. C., to be called Rocky River Mills. It will produce wool carpet yarns.



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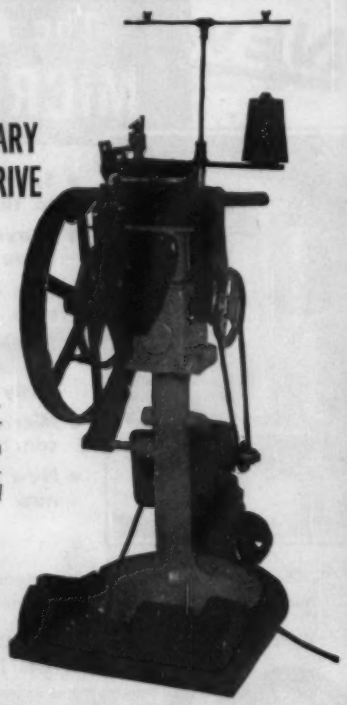

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NEWS ABOUT MILLS Continued

Boaz Mills, Boaz, Ala., has spent $300,000 on expanding facilities that include a system for making carpet yarns.

Ounegan Woolen Mills, Inc., Oldtown, Me., has purchased the Ounegan mill property in Oldtown, from Textron, Inc. The mill will continue to make woolen fabrics for women's and children's wear. New owners are Murray Rosen of Empire Sportswear and Jack E. Mintz of Jaxton Clothes.

SYNTHETICS MILLS

Oak River Mills, Bennettsville, S. C., a subsidiary of Mohasco Industries, Inc., is building a one-story plant.

Ponemah Mills, Taftville, Conn., is installing Unifil loom winders for winding filament yarn.

KNITTING MILLS

C. W. Anderson Hosiery Co., Inc., Clinton, S. C., has purchased the inventory and hosiery brands of Summer Hosiery Mill, Gastonia, N. C. The Anderson mill will expand the Summer brands.

Alamac Knitting Mills, Indian Orchard, Mass., has purchased the L. & L. Textile Co., a carding and blending unit, which will be used for the production of synthetic-fur fabrics.

Alamance Hosiery Mills is the name of a new plant to be opened in Burlington, N. C., by Chester H. Roth Co. The plant is expected to produce about 6,000 doz. pairs of women's seamless hosiery weekly.

Burlington Tricot Fabrics Co., Burlington, N. C., has been formed by Burlington Industries, Inc., to manufacture and sell gray and finished tricot fabrics.

Homestead Knitting Mills, Inc., has started production of sweaters at a location near Crossville, Tenn.

Shelley Knitting Mills Co., Philadelphia, Pa., is centralizing its operations on one floor and under one roof covering 100,000 sq. ft. at 1215 Glenwood Ave. The move is part of a $500,000 expansion program that also includes the installation of new high-speed equipment.

Wigwam Mills, Inc., Sheboygan, Wis., is the new name of Hand Knit Hosiery Co. It will continue to knit socks.

DYEING AND FINISHING PLANTS

Caledonia Dye Works, Philadelphia, Pa., has installed two latest-type fully automatic stainless-steel Hussong dyeing machines for processing 100- and 300-lb. lots of tapes. These machines represent the first of a battery of tape-dyeing machines scheduled for delivery this year.

Parsons & Baker Co., Phoenixville, Pa., is building a 30,000-sq.-ft. finishing plant at Casa Grande, Arizona. Plans are to build a knitting mill and spinning mill at a later date.

Phoenix Hosiery Co. has opened a hosiery-finishing plant at Asheboro, N. C. Equipment is being transferred from Milwaukee, Wis. The plant will be operated by McLaurin Corp., a wholly owned Phoenix subsidiary.

Sayles-Biltmore Bleacheries, Asheville, N. C., has started construction of a 60,000-sq.-ft. addition to be used for storage and production.

NEWS ABOUT MEN

Sidney Allen, Jr., has been named assistant superintendent of the Revolution Div., Cone Mills Corp., Greensboro, N. C.

John W. Bagwell has been named director of industrial and public relations of Cone Mills Corp., Greensboro, N. C.

John J. Bradbury has joined Adams-Millis Corp., High Point, N. C., as vice president in charge of merchandising.

George Brandt, Jr., has been appointed superintendent of Print Works Plant, Cone Mills Corp., Greensboro, N. C.

Joseph T. Carter has been promoted to superintendent of Startex Mills, Spartanburg, S. C.

William K. Chapman has been appointed controller of Orr Mills, Anderson, S. C.

Richard F. Cook has been promoted to general manager of Darlington Fabrics Corp., Pawtucket, R. I.

F. R. Cooper has been elected a director of Canton Cotton Mills, Canton, Ga.

Charles J. Davis has been made board chairman of Brookline Fabrics, Inc., Greenville, S. C.

George P. Denny, Jr., has been appointed sales manager of the Yarn Div. of Collins & Aikman Corp., New York, N. Y.

Everett C. Drake has been appointed comptroller of M. Lowenstein & Sons, New York, N. Y.

Eugene B. Dubois has been elected a vice president of Fulton Bag & Cotton Mills, Atlanta, Ga.

Carl P. Duffy has been elected vice president in charge of manufacturing operations for Ripon Knitting Works, Ripon, Wis.

W. E. Dunn has been promoted to general superintendent and a vice president of Huntsville Mfg. Co., Huntsville, Ala.

Paul Fabian has been named assistant to the general manager of Dodgeville Finishing Co., Attleboro, Mass.

Ben and **Alice Fortuna** have been appointed stylists for Sidney Blumenthal & Co.'s complete range of fabrics, New York, N. Y.

Frank Frey has been named assistant manager of the Clarkesville, Ga., mill of United Merchants & Manufacturers, Inc.

Gardner Friedlander has been named vice president in charge of production for Phoenix Hosiery Co., Milwaukee, Wis.

Robert A. Gilliam has been named executive vice president of Burlington Mills, Greensboro, N. C.

Thomas J. Gillick, Jr., has been named manager of the Engineering and Research Div. of American Felt Co., Glenville, Conn.

Laurent H. Girard has been appointed manager of the Yarn Div. of Duplan of Canada Ltd., Montreal, Que.

Guy Glenn, personnel director of the Orr and Lyons divisions of M. Lowenstein & Co., Anderson, S. C., has been transferred to the general offices in New York, N. Y.

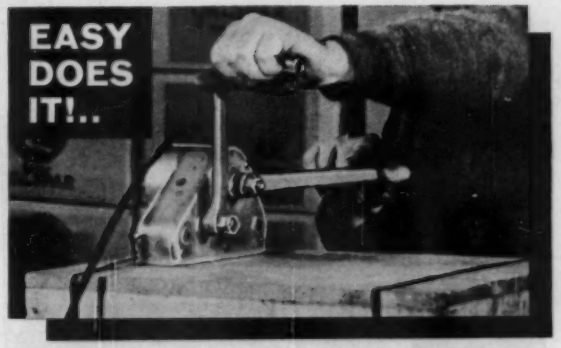
M. B. Hall has been elected a director of Pepperell Mfg. Co., Boston, Mass.

J. F. Harris, Jr., has been appointed secretary of Oakboro Cotton Mills, Oakboro, N. C.

Harold G. Hencken has been appointed director of engineering activities for American Felt Co., Glenville, Conn., with headquarters at Glenville.

W. B. Hill has been elected executive vice president of Highland Cotton Mills, High Point, N. C.

Edward F. Johnson has been appointed overseer of dyeing at Huntingdon Woolen Mills, Huntingdon, Que.



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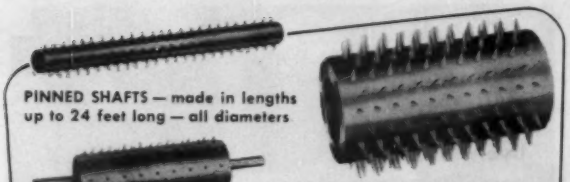

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George Jubrias has been appointed resident manager of Pacific Mills in Lawrence, Mass.

Harold C. Kelley has been promoted to general superintendent in charge of all manufacturing for Berkshire Hathaway, Inc., Providence, R. I.

A. Carl Lee has been named manager of the Cotton Dept. of Cone Mills Corp., Greensboro, N. C.

Leon Le Maire has been named superintendent of research and development for National Spinning Co., Washington, N. C.

Robert L. MacKenzie has been elected controller of Bigelow-Sanford Carpet Co., New York, N. Y.

William S. Manning has been appointed manager of the Filament Draper Div. of Burlington Industries, Greensboro, N. C.

Harold T. Marshall has been elected executive vice president of The Kendall Co., Walpole, Mass.

E. G. McIver, Jr., has been made assistant vice president for manufacturing at Erwin Mills, Durham, N. C.

Charles W. Moore has been appointed general sales manager of Quality Weaving Co., Philadelphia, Pa.

William S. Moore has been named superintendent of Florence Cotton Mills, Florence, Ala.

ROY H. NIEBLING has been elected a director of Sidney Blumenthal & Co., Inc., New York, N. Y.

LEE R. BARLAMENT has been elected manufacturing vice president of Appleton Woolen Mills, Appleton, Wis.

Bradley Nickles has been named head of the newly created engineering department for Callaway Mills, LaGrange, Ga.

Tom E. Peden has been named plant manager of Abbeville Mills, Deering, Milliken & Co., Inc., Abbeville, S. C.

Harvey Powell has been appointed manager of Print Works Plant, Cone Mills Corp., Greensboro, N. C.

W. H. Rawlings has been elected assistant treasurer of Erwin Mills, Durham, N. C.

J. Lennie Ritter has been elevated to superintendent of the Revolution Div. of Cone Mills Corp., Greensboro, N. C.

Richmond R. Roberts has been named treasurer of Fieldcrest Mills, Spray, N. C.

Leandre Roy has been named plant manager of the weaving mill of Duplan of Canada Ltd., Montmagny, Que.

Col. Ralph T. St. John has been appointed assistant commander of the Philadelphia Quartermaster Depot in charge of the Military Clothing and Textile Supply Agency, Philadelphia, Pa.

Lawrence A. Savage has been elected vice president in charge of the cotton mills division, Kendall Cotton Mills, Charlotte, N. C.

A. C. Sorrell has been promoted to assistant controller of Erwin Mills, Durham, N. C.

Frank Starling has been named superintendent of the Proximity Plant of Cone Mills Corp., Greensboro, N. C.

Carlton H. Stauffer, president of Narrow Fabrics Co., York, Pa., has been elected head of the Narrow Fabrics Institute, New York, N. Y.

Marshall C. Stone has been elected a director of Gaffney Mfg. Co., Gaffney, S. C.

A. W. Stoudenmire has been appointed superintendent of the Gerrish Milliken Plant, Deering, Milliken & Co., Inc., Pendleton, S. C.

Harry L. Swain, Jr., is now manager of Firestone Tire & Rubber Co.'s textile plant at Sao Paulo, Brazil.

Landon Thompson has been appointed administrative manager of Cramerton Mills, Cramerton, N. C.

WILLIAM K. WILDER has been named manager of Goodyear Fabric Mills and is taking over administration and coordination of production at the Cartersville, Rockmart, Cedartown, and Decatur mills.

Thomas S. Tolar, president of Pacific Mills, has transferred his headquarters from Greensboro, N. C., to Halifax, Va.

A. H. Volbrecht has been named treasurer of Janesville Cotton Mills, Janesville, Wis.

Textile World

OBITUARY

William D. Anderson, 83, chairman emeritus of the board of Bibb Mfg. Co., Macon, Ga.

Wallace Ayres, 91, former secretary of Dan River Mills, Danville, Va.

J. William Bourassa, 66, president and general manager of American Bobbin Co., Lewiston, Me.

Spencer Borden, 84, director of Sagamore Mfg. Co. and Foster Spinning Co., Fall River, Mass.

Ferdinand W. Breth, 70, vice president and technical director of L. Sonneborn Sons, Inc., New York, N. Y.

Ralph F. Carter, 64, president and general manager of Highland Knitting Co., Springfield, Mass.

William R. Creadick, 60, retired assistant general manager in charge of sales, Textile Fibers Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Louis G. Debaene, 47, retired general manager of Casco Laces, Freeport, Me.

Margaret J. Evans, former member of the board of directors and an officer of Onieta Knitting Mills, Utica, N. Y.

James M. Hughes, 52, superintendent of weaving, Travora Textiles, Inc., Graham, N. C.

Milton Silver, 64, president of Silver Knit Hosiery Mills, High Point, N. C.

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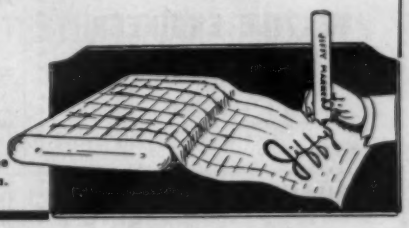

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Circulation manager on industrial publication. Must have sales and writing ability and knowledge of mill work. P-4078, Textile World.

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Overseer of weaving. I have ten years experience ICS Graduate, 48 years old. PW-4081, Textile World.

Textile Engineer available; seeks opportunity with manufacturer of woolen, worsted synthetic fabrics knitting yarns. Can undertake full management or superintendent fabricating, finishing. Excellent salesman. Twenty years experience. Highest references. PW-3834, Textile World.

Man experienced with braids and braided trimmings, hat braids, fancies and cords. Have been employed as setter, designer and superintendent of braided items. PW-4433, Textile World.

Dyer—Chemist—B.S., with diversified background desires position on administrative or production level. Experience includes dyeing of natural and synthetic fibers with all types of dyes on packages, skeins and piece goods on both continuous and non-continuous equipment. Excellent supervisory background, trouble shooting, cost and quality conscious. Willing to relocate. Married, veteran, $7800 per annum. PW-4121, Textile World.

Successful superintendent large textile mill desires to make change. Age—42. Married. Twenty-four years in textile industry. Extensive knowledge of synthetics and cotton, specializing in weaving and slashing. Textile education in Europe. PW-4368, Textile World.

Assistant superintendent synthetic weaving mill. Extensive experience with synthetic fibers. Specialized in weaving. Now employed as overseer of weave room. References. PW-4343, Textile World.

Superintendent — assistant superintendent. 32 years experience complete manufacturing through weaving. Carded and combed cotton, blends, synthetics, fiberglass. Excellent record production, administration, labor relations. Top references. PW-4360, Textile World.

First Class Textile Expert. Blend composer designer and technical manager, spinning and weaving of woolens and worsteds. Bruenn graduate, age 44, with 25 years practice, thoroughly trained and experienced in production and supervision, versed in up to date achievements in machinery, raw materials and styling, speaks several languages, just immigrated to the U.S.A., seeks adequate position. PW-4472, Textile World.

SEARCHLIGHT SECTION

(Classified Advertising)

BUSINESS OPPORTUNITIES

EQUIPMENT - USED or RESALE

UNDISPLAYED RATE

$1.50 a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

PROPOSALS, $1.50 a line an insertion.

BOX NUMBERS count as one line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

DISPLAYED RATE

The advertising rate is $14.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

Send NEW ADS OR INQUIRIES to Classified Div. of Textile World, P. O. Box 12, New York 36, N. Y. for April Issue Closing March 15th

BUSINESS OPPORTUNITY

We wish to contract for purchases of specially-printed draperies, curtains, other fabrics. Manufacturers, please contact us by letter for details. Textilevania Company, P. O. Box 655, Hyattsville, Md.

DON'T THROW 'EM AWAY

Every month of the year we refinish old beat up bobbins which save mill buyers plenty in yarn carrier expense. Any used bobbin made from wood or paper can be refinished to give many more months of service . . . if not too badly cut up. May we prove it? Send us 50 samples together with spindle. No charge.

FITCHBURG ENAMEL COMPANY
Fitchburg, Mass.
Bobbin Finishers for 60 Years

ANNOUNCING!
A NEW SERVICE TO YOU!!

Most all mills make good yarn. Why spoil your good yarn on worn and thread-cut Bake-lites???

Don't throw those old Bake-lites away. We will re-work them for you. Your satisfaction guaranteed.

CHAVIS TEXTILE SALES CO.
802 Bessemer City Rd. Gastonia, N. C.
P.O. Box 246 Phone UN 4-4311

WANTED

Additional Wanted Ads on page 262

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. Boston, Mass.
Established 1919

WANTED TO BUY
72" W-3 Worsted Looms

Automatic chains, let-off preferred, convertible or non-convertible. 18 or more on same L. O. When replying, please give L. O. number and price.

BLACKSTONE MILLS, INC.
Clinton, Mass.

We Own And Offer
Late Equipment
At A Fraction Of Original Cost

40 US TEXTILE FACE DRIVE TWISTERS
1950-1951 HEADLESS PACKAGE DD
8" GAUGE • • 160 SPINDLES • • 2 MOTORS
440 VOLT, 3 PHASE, 60 CYCLE • • MAGNETIC STARTERS
NYLON BOBBINS • • ALL ACCESSORY EQUIPMENT

12 US TEXTILE 1951 HI SPEED REDRAWS
SPINDLELESS • • 7" GAUGE • • 60 SPINDLES PER
MOTORIZED • • 3 PHASE • • 220 V • • 60 CYCLE
LIKE NEW CONDITION

45 Whitin-Schweiter
AUTO QUILLING SPINDLES
Units of 2-15—1-12—1-3
1945-1947 Models

H & W 6 YARN CONDITIONERS
ALL ELECTRIC—44-48 Models

1—ROYLE 400 & 600 CONVERTIBLE JACQUARD REPEATING MACHINE
Phila.-Index

1—1949 GLODDIE QUILLING MACHINE
Belt driven. Complete with motorization and auxiliary equipment.

90 Late type NYLON CONERS

Universal & Foster
UNIVERSAL #50 FOSTER #75A
Stainless steel emulsion rolls and troughs. Pineapple attachments. L-drive, gear gain. Motorized in units of 12 spindles.

1—FOSTER TENSIOMETIC WINDER MODEL C-T

EXTRACTORS—STAINLESS STEEL
48" Tollhurst 42" American Laundry
Only Partial Listing

2-ATWOOD UNIRAILS
MODEL 501-1954
192 SPINDLES • • DD • • 6" GAUGE
BOBBIN DELIVERY • • COMPLETE BOBBINS • • RACKS
EXCEPTIONAL BUY

MONEY MAKING NARROW FABRIC LOOMS

8 FLETCHER 48-49 VENETIAN BLIND LOOMS
24 space 4 shuttle cross shot.
4—C&K VENETIAN BLIND TAPE LOOMS
2 shuttle cross shot string tape.
2—1947 FLETCHER LIGHT NAME TAPE LOOMS
like new condition
12—1947 C&K TAPE LOOMS
Heavy duty chain heads. 30 space battens, pick clocks, motorized.
LOOMS BUILT TO SPECIFICATIONS

Late-type DYE HOUSE MACHINERY

1—3' SHALLOW DYE BECK
Rodney Hunt. Stainless Steel, open top. 1947 model.

JAMES HUNTER 1950 2' SAMPLE DYE BECK
Stainless Steel. Totally enclosed. Complete.

2—BEAM TO BEAM POWER INSPECTION FRAMES
Van Vlaanderen and Progresive. 75" to 64" face rolls. Variable speed forward and reverse.

3—VAN VLAANDEREN TUBING MACHINES
High speed, 70" cloth. 1948-1950 model.

1—VAN VLAANDEREN 70" STAINLESS STEEL DYE JIG

Sipp Eastwood 1953
DIRECT WARPER

1—NASH MODEL 88 BOBBIN POLISHER

12 SIPP EASTWOOD REDRAWS
1949 MODELS
HIGH SPEED • SPINDLELESS
60 SPINDLES PER

4—1951 STAINLESS STEEL HUSSONG DYEING MACHINES
600 lb. capacity

1—1953 STAINLESS STEEL HUSSONG DYEING MACHINE
100 lb. capacity. Complete with motor.

Large PACKAGE
10-B
BOBBINS

QUAN	HEAD	BASE	TRAVERSE
6400	2 1/16"	4 1/16"	8"
2500	2 1/16"	4 1/16"	7 1/2"
4200	3 1/16"	3 1/16"	7"
1500	2 1/16"	3 1/16"	8"
1100	3"	4"	8"

MILLIONS MORE IN STOCK
Subject to Prior Sale

Wm. Rabinowitz & Sons
TEXTILE MACHINERY, BOBBINS & SUPPLIES
214 - 222 Hamilton Street Phone HEmlock 3-7497 3-7498 Allentown, Pa.

FOR SALE

1—Smith-Drum 4 Port Dryer
1—Smith-Drum Sample Package Dyer
1—Winsor & Jerauld 90'x100" Tenter
1—Riggs & Lombard 3 roll 100" Padder
2—Werner Stainless Steel 100" Jigs

JAMES E. FITZGERALD
10 Purchase St. Fall River, Mass.
Tel. OS 8-5616

PRICES HAVE BEEN THAWED OUT

1—Whitin Model D Staple Cutter—Like New
1—Clark Mixing Picker, 24" wide, 8 bar cyl.—NEW
1—Tomlinson Waste Machine, 18" single cylinder
1—Flax Fiber Softener
84—Spindles Whitin Schweiter Filling Winders with Hoppers
1—Cocker Slasher, 1949, 7-Can, Reliance Drive
1—Cocker Warper, Reliance Dr., 1949, 840 end Creel
1—Sipp Warper, 1948, EN8039, Cotton System
1—Abbott Filling Winder, 100 spindle, 1948
2—Model L Bobbin Strippers and Hoists
4—Model K Bobbin Strippers and Hoists
2—Universal Atwood Unirail Uptwisters, Dble. Deck
4—Universal Atwood Utility Uptwisters
1—#50 Cone Winder, Gear Gainer, 3"30' Cones
2—Haskell-Dawes 12-spindle Tubing Twisters—Also Layers
1—Worthington 10x10 Air Comp. & After cooler
2—Humidification Units—Parks-Cramer, Jackson
6—Cloth Inspecting Machines—All Types to 72"
2—Shawmut Reed Cleaning Machines—1 Rebuilt
3—Transformers: 2—100KVA, 1—30, 150-110/220
3—B/C Portable Tying Machines: 1—LL, 2—LS
24—Narrow Fabric Looms—12 piece to 40 piece
48—Draper E Looms, 56" R.S., Dobby, Lenom.
116—C&K W2 Looms, 80" & 82", convertible, 4x4
2—Johnson Slashers, 1948, Model CS-9

SUPPLIES
1M—12"x36" Roving Cans, Rolled & Metal Top
100 —Loom Motors, 1 hp., 1800, 550 a/c B.B. 1949
5M—Stop Motion Rods—Also Complete Motions
5000M—Dropwires—All Types
400 —Friction Head Loom Beams, 20"x40"
1M—Loom Motors, All Types, 1/2 to 1 1/2 H.P.
24M—NC727, G758 Armstrong Spinning Cots—NEW
1M—Pick Clocks, 2 and 3 shift, complete
10M—Heddles & Frames, 10", 11", 12", 13", 14"
15M—Canvas & Rubber Lug Straps, All Types—NEW
20M—Pick Gears: L56000, L26100, L26400, C&K
171 —Hayes Loom Beams, Aluminum, 73"x32"

MACHINERY SALES CORPORATION
22 Elm St., P. O. Box 367
New Bedford, Mass. WYman 6-2271

FIBRE PROCESSING EQUIPMENT

3—Sargent Wool BAGGERS with Motor Drives.
2—Economy Downstroke BALERS, 72x30 by up to 50", motorized.
6—American Stock BLOWERS, 30".
1—D&F Iron Waste CARD, 60x60, Garnett wire on workers and strippers.
1—D&F SAMPLE CARD, 10" wide, 15" dia., with motor and table.
1—P&S Ceiling CONDENSER, 36"x18" dia., ¼" perforations.
1—Taylor-Stiles Giant Stock CUTTER, 11", double blade.
1—Cone DUSTER 10', pinned cylinder.
6—Cast Iron DOFFER ROLLS 20"x49", 30"x49, 27¾"x59".
1—Tolhurst S.S. EXTRACTOR 60", V-belt drive.
1—Sargent 44" Stock FEED, Model M, w/comb and knockoff roll.
2—Sargent Pit Type Wet Stock FEEDS 48", Reeves Drives, Motors.
2—P&S Pit Type Wet Stock FEEDS 78", Reeves Drives, Motors.
2—Bramwell Automatic Card FEEDS 60".
1—Harwood Bramwell Hopper FEED 78", w/extended bottom apron.
1—Hunter 2 Cyl. GARNETT 30"x60", w/Hopper Feed, Breast, 18-26 thds.
3—Hunter 4 Cyl. GARNETTS 30"x60", w/Hopper Feed, Breast, Waste Savers.
1—GRINDER for Rag Picker, 43" bed, screw type feed, fixed stone.
2—Iron TANKS, 26" I.D. x 27" deep, on legs, w/ Gould #1 Pumps.
4—Clark LUMPERS 48", with 48" Bramwell Feeds.
1—Foote Gear Reduction MOTOR, 10 HP., 550/3/60/1750, ratio 9.2 to 1.
3—D&F Staple OPENERS, pinned B.B. Cyls., 42" dia. x 21" face.
1—Franke 22" MIXING PICKER #10, with feed table.
1—C&M 24" Atlas #3 PICKER, 12 Bar, Ball Bearing.
2—D&F 48", 12 Bar, PICKERS, B.B., (1 Mixing, 1 Shredding), Feed Tables.
1—SCHOFIELD 42" Waste PICKER, B.B., w/feed table, 4 feed rolls.
2—P&S 60" Tandem Garnett PICKERS, metallic wire throughout.
1—Galland-Henning Open Type BALING PRESS, 56"x36"x5', downstroke.
1—D. Gessner 2 Roll SQUEEZE SET 72", top roll rubber, bottom brass.
1—Toledo Fan Type Counter SCALE, 30# cap. w/large and small scoop.

McDOWELL ASSOCIATES INC.

General Offices 41-E, 42 Street
New York City 17, N. Y.
Phone: Murray Hill 2-7417

Warehouse No. 1 N. Front
Dock & Water Sts., Hudson, N. Y.
Phone: Hudson 8-3211

ACID TREATMENT PLANT

FOR WOOL SCOURING WASTES

Equipment Designed to Acid Treat Wastes from Wool Scouring Operations. Includes—Oliver Precoat Filter, 5'3" dia. x 8' face; Vacuum Pump; 18' dia. lead lined reacting tank; motors, piping, pumps, agitators, etc. Built 1951, UNUSED. Adaptable for other uses.

Also Centrifugals, Stainless Steel Tanks and Kettles.

PERRY EQUIPMENT CORP.
1430 N. Sixth St. Philadelphia 22, Pa.
ST 4-3505

DYEING MACHINES

SMITH DRUM ROTARY Washers, 42x84", open pocket, suitable for dyeing purposes; Extractors, 40", 48", 60" Stainless or Monel Open Top; also Stainless or Monel laundry type Washers, 42 x 96"; 2—Stainless Paddle Dyers, 50 lb. and 100 lb.

All equipment very reasonable priced.

WILLIAMS MACHINERY CO.
37-37 9th Street, Long Island City, New York
STillwell 6-6666

FOR SALE!
MACHINERY, EQUIPMENT and SUPPLIES of

MONUMENT MILLS, INC.
(Bedspread and Drapery Weaving and Finishing Plant)
HOUSATONIC, MASSACHUSETTS

WEAVING AND SLASHING:

40—Draper Model "O" 100" Cloth Looms, 16 Harness Gem Heads, Age 1952
9—Draper Model "O" 110" Cloth Looms, 936 Hook Jacquards, Age 1952
114—Draper Model "O" 80"-110" Cloth Looms, with Jacquard Heads
3—Barber-Colman Model "LC & K" Knot Tyers
2—Lowell 2-Cylinder 120" Beam Slashers

SPINNING AND WINDING:

33—Saco-Lowell Frames, 240 spindles each, 3½" and 3¼" gauge
117—Spindles Whitin Schweiter Winding, Age 1945 & 1950
1—Abbott 60 Spindle Automatic Quiller
1—Foster #102 Winder, 50 cone spindles-50 tube spindles
2—Foster #102 Winders, 100 spindles each, 7" traverse, wood tubes

DYEING AND FINISHING:

1—Riggs & Lombard 3-Roll 100" Pneumatic Padder
1—Textile 2-Roll 110" Water Mangle
1—Textile 2-Roll 110" Dye Padder
2—Werner 100" Stainless Steel Dye Jigs
1—Winsor & Jerauld 90' x 100" Cloth Tenter with Housing
1—Parks & Woolson 90" Selvage Cutter
1—Curtis & Marble 100" Cloth Doubler, Batcher, Etc.
6—Railway Sewers, Inspectors, 90"-110" Cloth

MISCELLANEOUS:

1—Hungerford & Terry Water Softener, Age 1948
1—Abington Weave Room Vacuum Cleaning System, Age 1952 Bobbins, Electric Hoists, Stainless Steel Kettles, Air Compressors, Factory Trucks, Material Handling Equipment, Steel Shelving, Laboratory Items, Etc.

Offered Exclusively by GEORGE D. FLYNN, JR.

31 CANAL STREET
Tel. Providence, R. I. GAspee 1-9423
Fall River, Mass. OSborne 8-5616

PROVIDENCE 3, R. I
JAMES E. FITZGERALD, AGENT

WE HAVE FOR SALE

1—VV 50'—56" Palmer-tenter 1941
1—Werner—2 Roll—70" 7½ ton Air Pad
1—Measure-o-graph—70"
1—VV—72" Palmer—low type
1—VV—64" Buttonbreaker
1—32" tuber, Spare quetch, calendar and pad rolls
2—VV 60" tensionless jiggs
2—68" SS cans
43—SS dye becks 5' to 16'
2—12' SS dye becks with covers
90—SS Finishing trucks 66" x 43"
90—SS Box trucks 60" x 36" x 30"
9—Merrow 60D3b

MAR-DAY TEXTILES
52-60 BERKSHIRE AVE. PATERSON 2, N. J.
MU 4-5132

FOR SALE: BUTTERWORTH 72 INCH TENTER FRAME

with 200 extra clips in original packing
E. V. HEUVEL
H. W. BAKER LINEN CO.
315-317 Church St. New York 13, N. Y.
Phone CAnal 6-4100

TEXTILE AUXILIARIES, INC.

In Stock, Reconditioned for Immediate Delivery

2—Rodney Hunt—60" open width, Tensitrol Washers, with 2 Pneumatic 60" Nips, 2 Compartments each, one all stainless steel and one lead-lined, practically New.
1—R & L—15 Ton—50" x 16", 2 Roll, B.B. Pneumatic Padder.
3—72" S.S. Heavy Duty Dye Jigs.
4—5' x 54" Face S.S. Dry Cans.
1—P & W, 54" Double & Rolling Machine. Reeves Drives, open and closed, from 000 to Sizes 6½, also Spare Rubber and Calender Rolls.

"We Specialize in Finishing Equipment"

Office and Warehouse
146 West River Street, Providence 1, Rhode Island

Telephone: Dexter 1-9650
Dexter 1-8837

FOR SALE

USED & REBUILT
ECONOMY BALING PRESSES
Electric & Hand
All Sizes in Stock
FERTIK & COMPANY
9th & Tioga Sts., Phila. 40, Pa.

FOR SALE

1—41" Rice Barton & Fales 7-color Printing Machine
2 sets 40" Copper Dry Cans (each set 3-60"d, 1-36"d)
1 set (7) 44" Copper Dry Cans (30"d)
1—50 ft. Tenter Frame
HARBOR MACHINE COMPANY
Tel. 542 Adams, Mass.

PRIVATE SALE LIQUIDATION

THE E. RICHARD MEINIG CO.

McKnight & Oley Sts., Reading, Penna.

This Plant has been completely modernized in recent years with new equipment installed during the late 1940s thru 1955. This is only a partial list. Complete catalogs available shortly.

TRICOT MACHINES

1—Reiner 28 ga. RT2 x 2-bar 168"
17—Reiner 28 ga. RT2 x 3-bar 168"
4—Reiner 28 ga. RT1 x 2-bar 168"
18—Reiner 32 ga. RT2 x 2-bar 168"
1—Reiner 32 ga. RT4 x 3-bar 84"
1—Saupe 28 ga. (Rebuilt) 3-bar 84"

SIMPLEX MACHINES

3—Reiner 32 ga. SR1 x 2-bar 84"
27—Hoffman 32 ga. x 2-bar 84"
4—Hoffman 30 ga. x 2-bar 84"
7—Saupe 32 ga. x 2-bar 84"
1—Fouquet & Frantz 18 ga. Circular Diagonal Warp Knitter (Milanese)
4—Raschel 24 ga. Mchs. Dble Acting Jacquards

WARPING

6—Reiner 30" SW-24 Warpers 21 x 21. Reliance D. C. Drives. Creels, etc.
1—Missro FNF Ltd. 42" Bobbin Warper. 1952 Mdl. No Creel. (New)
4—Parks Cramer Self Traveling Cleaning Units (Creels) on tracks
780—Alco Alum. Warp Spools 21 x 21 x 19
751—Alloy Alum. 12 x 12, 18 x 14, & 21 x 14 magnesium
96—Milton S.S. 21 x 14 Spools
20—Steel Dbl Door Totally Enclosed Yarn Trucks 54 x 38 x 60. Rubber Tires
1—Pin Warp Reel 186". Mtr. Dr.

DYEING

1—S.S. Lines 24-string x 140" Enclosed Dye Mch.
1—R. Hunt Tru-Shade S.S. Enclosed 24-string x 144" Dye Kettle
2—S.S. Enclosed 12" Dye Kettles
2—S.S. Enclosed 18" Dye Kettles
1—S.S. 6-string x 35" Enc. Dye Kettle
1—S.S. 18-string x 93" Enc. Dye Kettle
1—S.S. 8-string x 45" Enc. Dye Kettle
1—S.S. 24-string x 116" Enc. Dye Kettle
2—S.S. 24-string x 120" Enc. Dye Kettle
2—S.S. 2-string x 24" Enc. Dye Kettle
2—S.S. 12-string x 69" Enc. Dye Kettle
4—S.S. Take-off Reels 25". Mtrs. Pulley drive on Tracks.
13—S.S. Box Trucks 34 x 36 x 60
11—S.S. Box Trucks 29 x 30 x 50
1—Burlington 142" Closed S.S. Pressure Horizontal Dye Mch. 39½"W x 49½"D. Complete. W/Taylor Panel Board. Yr. 1954
1—Burlington 142" Open S.S. Dye Mch. Type 304. 39½"W x 49½"D. Complete w/Taylor Panel Board. Yr. 1955
10—S.S. Beams 18" dia. x 4 Flanges. 1954-5
4—Benninger 54" S.S. Dye Jigs. Dble Door Enclosed. 1954-5

FINISHING & TENTERING

1—Continuous (Mercerizing Range) 6-Compartment Shrinking Train. 50" Rolls. Complete
1—Nylon Setting Autoclave 120". S.S.
1—Nylon Setting Autoclave 60". S.S.
2—S.S. 50-gal. Tanks w/Lightning Mixers
1—Enclosed Multiple 10-Pass Pin Tenter 35-72" x abt 45'. W/controls. Hydraulic 72" Quetch, S.S. Feed, etc.
1—Hunter 6-Pass Pin Tenter 28-72" x abt 45'. W/controls. Wet goods Selvedge Trimmer. Elec guides, etc.
1—Enclosed Straight Line Pin Tenter 28-72" x abt 69'. W/90" Quetch. 100" Pneumatic Rubber Rolls, All Controls, Motors, etc.
1—McCreary 120" Tenter Pin Type Batcher abt 18'. Mdl 120MB. Yr 1954. Electronic Controlled, etc.
1—Rodney Hunt 120" Wring-Master Quetch. Hydraulic. 18" Rolls. Controls
1—Enclosed Pin Tenter 36 to 120" x abt 120' overall. McCreary Electric Unit for Nylon Setting. All Controls, etc.
1—Enclosed Pin Tenter 120" x abt 45'. Gas Heated. Full Automatic
2—Birch 72" Back Lighted Ceiling Perches
1—Firsching 72" Cloth Rolling Mch. Slitting-in Roll. Trumeter
1—Cloth Rolling Mch 96". Trumeter
1—Cloth Rolling Mch 66". Trumeter
1—Barrett Elec Lift Truck 26 x 46"
2—R.H. Wring-Master 60" Quetches. 66" Rolls. Pneumatic
3—Van Vlaanderen 48" Extractors. 7½-HP Motors
2—Cook Detwisters

NAPPING & SHEARING, ETC.

2—P&W 72" x 24-Roll D. A. Nappers. Mtrs. Blowers
1—Roy Napper Grinder 105"
4—Curtin Hebert 62" Sueders. Oscillating Water Cooling
2—Cotton Sueding Mchs 7-Roll 60" Units
4—Taylor 5-Roll 60" Units
1—Berks 5-Roll 60" Unit
2—Pohlers 5-Roll 60" Units
1—Gessner 66" Sgl Bed Press
47—Platform Trucks 36"W x 44½" or 50 or 54"

MISCELLANEOUS

1—Unit Including Am. Moistener 50-Jet Head Humidifiers w/pipe & duct
2—Worthington 50-HP Refrigeration Compressors. Air Cond. System
2—Goodfellow Cooling Towers, etc.
Fluorescent Lights - Sewing Mchs - Toledo Scales - Steel Clothes Lockers - Carpenter Shop - Machine Shop - Electric Hoists - Testing Equipment - Trucks - Air Compressors - Overhead Tracking - Vises - Time Clocks - Complete Offices - Parts - Supplies, etc.

Inspection—Plant open daily for inspection. Representative on premises. *Inquiries*—Please address all inquiries to the plant.

OFFERED EXCLUSIVELY BY:

GEORGE D. FLYNN, Jr.
31 Canal Street, Providence 3, R. I.
GAspee 1-9423

and

Telephone

FRANK G. W. McKITTRICK CO.
78 Fletcher Street, Lowell, Mass.
GLenview 8-6391

COMPRESSORS VACUUM PUMPS

For the Finest in Rebuilts

1902 AMERICAN 1957

93 CFM 100 psi 7x6 Ingersoll-Chicago
137 CFM 100 psi 7x7 Ingersoll ES1
173 CFM 100 psi 9x8 American-Ingersoll
234 CFM 100 psi 9x9 Chicago (Steam) New
254 CFM 115 psi 10x10 Ingersoll ER1
283 CFM 35 psi 10x7 Ingersoll ES1
290 CFM 75 psi 10x9 Ingersoll ES1
354 CFM Vacuum 14x5 Ingersoll
364 CFM Vacuum 14x6 Ingersoll
368 CFM 100 psi 12x10 Ingersoll ER1
457 CFM 40 psi 12x9 Ing. ES (New) 2
496 CFM Vacuum 14x7 Worthington HB
502 CFM 125 psi 12x13 CPT-TB
593 CFM 100 psi 13½-8x8 Ing. XRE 100 HP 3/60/440-.8PF
622 CFM Vacuum 18x6 Ing.
686 CFM 100 psi 14x13 CPT-TB
730 CFM 50 psi 15x11 Ing. ES1
868 CFM 100 psi 17-10½x14 Ing. XRB2
1600 CFM 40 psi Fuller C-300-Syn
1717 CFM 20 psi 23x13 Ing. ES1

NEW IN 1950
1665 CFM 42 psi 16-16x12 Ing XRE1 3-60-550

American Air Compressor Corp.
Dell & Tex Streets — North Bergen, N. J.

LIQUIDATING

Modern Dyeing Finishing Printing Machinery

PARTIAL LIST

1—72" padder, pneumatic 12 ton, rubber & stainless rolls, ball bearing.
4—50"-60" padders, 2 rubber rolls, ball bearing.
18—50", 56", 60", 70", 90" dye jiggs,, all stainless steel, enclosed and open.
2—7' enclosed stainless steel dye becks, 60" deep.
15—4', 6', 8', 12', 16' dye becks, stainless steel, enclosed & open.
1—50" hydraulic calander, 80 ton, ball bearing, seam detector, spare roll.
1—50" Calander, ball bearing, static eliminator.
1—72" Schriener hydraulic calander, 50 ton, spare roll.

Also, S. S. dry cans, nappers, print machines, decators, dryers, etc.

WE WELCOME YOUR INQUIRIES

SOUTHERN OFFICE
IPA SOUTHERN, INC.
610 S. Carolina Nat. Bk. Bldg.
Greenville, South Carolina
Tel: 2-3561

IPA

NORTHERN OFFICE
INDUSTRIAL PRODUCTS OF AMERICA
140 Market St., Paterson, N. J.
Tel. Sherwood 2-6614 Cable: Texindus

WOOLEN *FOR SALE IN STOCK* WORSTED

1—D&F 48" x 12-Bar Mixing Picker
1—Sturtevant No. 7 Des. 3 Stock Blower M.D.
1—D&F 3-cyl 60x60 Woolen Card. Peralta. Whitin 96-end Tape.
7—D&F Iron Card Cyls. 60x48" dia.
9—D&F Iron Card Cyls. 60x54" dia.
6—Duesberg-Bosson 72" Peraltas
2—Abbott 109-spdl. Mdl. 65 Wood Cone Winders
1—Whitin Schweiter 12-spdl. Filling Winder
24—C&K 92" W-3 Auto 4x1 Woolen Looms. L.O. 15, 362
6—C&K 82" W-3 Auto 4x1 Woolen Looms
70—C&K 76" W-3 Auto 4x1 Woolen Looms
250M—Auto 9½" Wool or Worsted Loom Bobbins
84—Kennett Fiber Filling Boxes 29x10½x11½
4—Birch 84" Back-lighted Burling & Mending Tables. Reversible. ½-HP 550V.
2—D&F 86" x 14-Roll S. A. Nappers, yr. 1948. 5-HP Motors. 30/34 s.s. wire put on 10/17/56.
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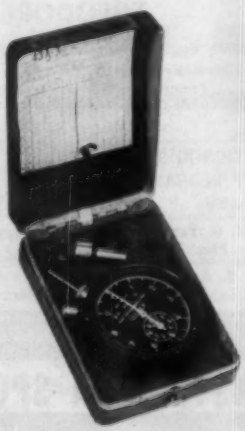

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B. Building Construction and Maintenance, Paints, Yard Equipment, Water Supply.
C. Chemicals and Dyestuffs.
D. Cleaning Equipment.
E. Dyeing, Finishing, and Cloth Room Equipment and Supplies.
F. Electrical Equipment—Motors, Controls, Lighting, Etc.
G. Fibers, Yarns, Mills, Finishing Companies.
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M. Lubricants and Lubrication Equipment.
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O. Materials and Components for Machinery and Equipment.
P. Materials Handling, Packaging, and Shipping Facilities.
Q. Power Generation and Transmission (see also Electrical Equipment).
R. Weaving and Warp Preparation Equipment and Supplies.
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Abbott Machine Co., Inc.	26	T
Acme Steel Co.	48	P
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Caldwell Co., W. E.	256	B, E
Celanese Corp. of America Yarn Div.	46, 249	G
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Chemstrand Corp.	66, 84-85	G
Ciba Co.	229	C
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Collins Bros. Machine Co.	234	T
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Crompton & Knowles Corp.	13	R
Crompton-Richmond Co., Inc.	250	N
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Curlator Corp.	45	T
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Cutler-Hammer, Inc.	187	F
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Eaton Mfg. Co. Dynamatic Div.	53	Q
Emkay Chem. Co.	254	C
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Fidelity Machine Co., Inc.	95	L, T
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Foster Machine Co.	161	T
Franklin Process Co.	39	G
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General Chem. Div. Allied Chem. & Dye Corp.	178	C
General Dyestuff Co.	235	C
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General Strapping Corp.	255	P
Gessner Co., David	94	E
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Goodyear Tire & Rubber Co., Inc.	15	C
Graton & Knight Co.	185	R
Guider Specialty Co.	242	E
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Hinde & Dauch	206	P
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Lockwood Greene Engineers, Inc.	60	N
Loom Service Co.	257	N
Louden Machry. Co.	193	D P
Loper Co., Ralph E.	256	N
Lubriplate Div., Fiske Bros. Refining Co.	246	N
Lunkenheimer Co.	57	H
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Manhattan Rubber Div.	68	Q
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Mathieson Chemicals Olin Mathieson Chem. Corp.	76	C
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Minneapolis-Honeywell Reg. Co. Industrial Div.	247	K
Micro Switch Div.	54	F
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Mount Hope Machinery Co.	198	E
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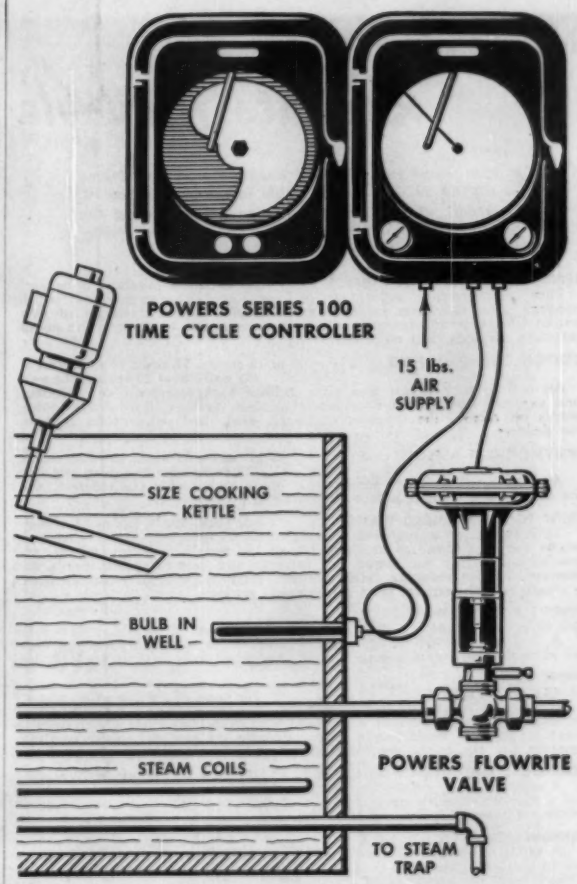
National Starch Prods., Inc.	49	C
Naugatuck Chem. Div. U. S. Rubber Co.	171	C
Nitrogen Div. Allied Chem. & Dye Corp.	51	C
Oaklite Prods., Inc.	251	C
Olin Mathieson Chem. Corp. Industrial Chemicals Div.	76	C
Ordnance Gauge Co.	228	L
Parks-Cramer Co.	91	A D
Perfecting Service Co.	238	H
Perkins & Son, Inc., B. F.	78	E
Pneumafil Corp.	11	T
Powell Co., William	30	H
Powell Valves	30	H
Powers Regulator Co.	268	K
Procter & Gamble	70	C
Proctor & Schwartz Inc.	243	E
Raybestos-Manhattan, Inc. Manhattan Rubber Div.	68	Q
Refined Products Co.	2nd Cover	C
Reliance Elec. & Eng'g. Co.	41	F Q
Ridge Tool Co.	227	H
Riggs & Lombard, Inc.	86	E
Roberts Co.	9	T
Rodney Hunt Mach. Co.	93	E
Rohm & Haas Co.	167	C
Ryerson & Son Inc., J. T.	226	O
Saco-Lowell Shops	32, 156	T
Sandoz Chem. Wks., Inc.	81	C
Sargent's Sons Corp., C. G.	210	E
Scragg Ltd., Sydney & E.	230	T
Scragg & Sons, Ltd., Ernest	154	T
Shawinigan Resins Corp.	33	C
Sheffield Corp.	253	K
Sherwin-Williams Co.	67	E



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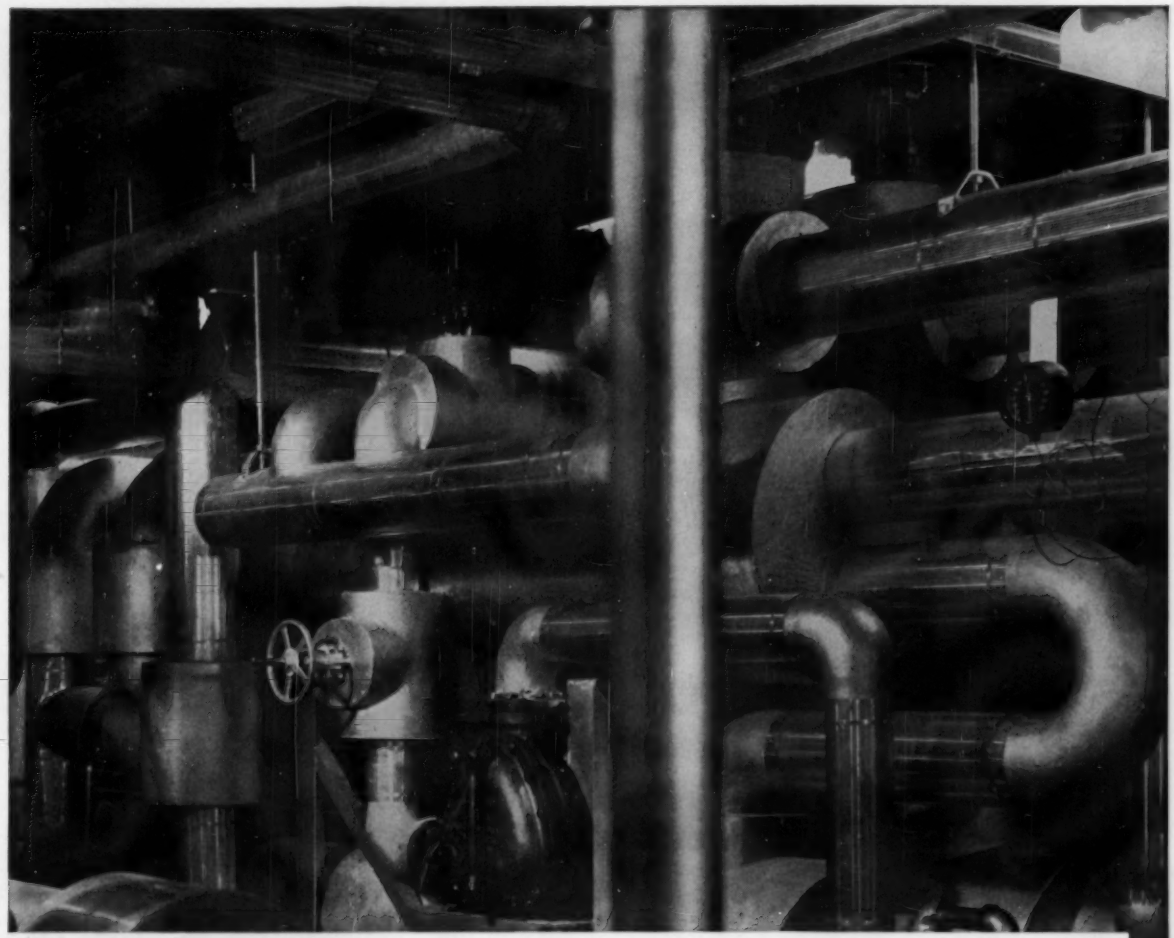

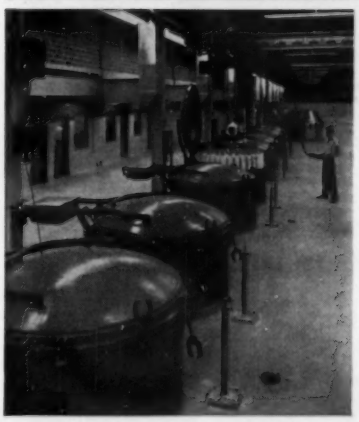

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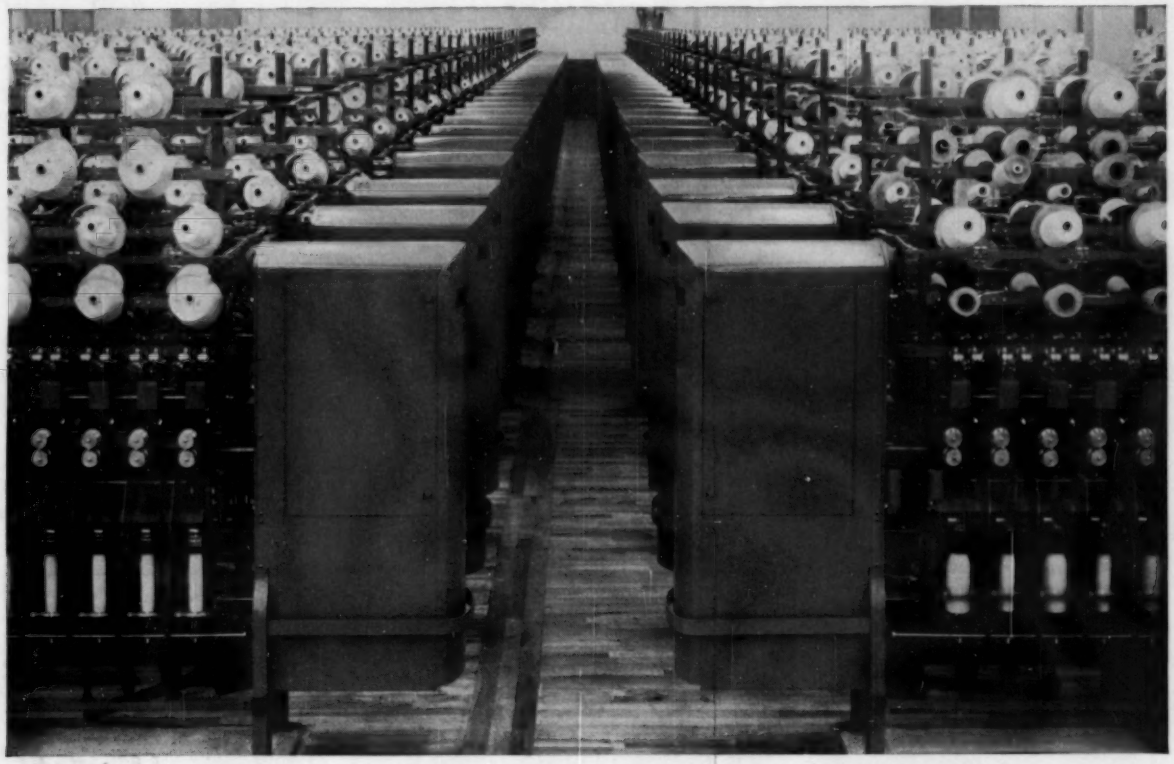

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